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**Development of  
Toxics Emission Factors from  
Source Test Data Collected under  
the Air Toxics Hot Spots Program:**

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**Volume 1**

**CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY**

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**AIR RESOURCES BOARD  
Research Division**



DEVELOPMENT OF TOXICS EMISSION FACTORS FROM SOURCE TEST DATA  
COLLECTED UNDER THE AIR TOXICS HOT SPOTS PROGRAM

Final Report

Volume 1

Contract No. 92-338

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## ABSTRACT

The California Air Resources Board sponsored a program to develop air toxic emission factors from source test data collected under the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB2588). Work for the project was divided into two phases. The purpose of Phase I was to collect all source tests prepared for AB2588, screen each test, conduct a detailed validation on selected tests, develop emission factor calculation procedures, and conduct a case study. Over 800 hundred source tests have been collected from a wide range of devices including asphalt dryers, boilers and heaters, reciprocating internal combustion engines, turbines, glass and metal furnaces, polystyrene reactors, and coating and plating operations. During Phase II, emission factors were calculated from a selection of 200 priority tests for trace metals including hexavalent chromium, PCDD/PCDF, PAH and other SVOC, benzene, toluene and other VOC, aldehydes, and HCl. The emission factor calculation procedures included categorizing each test by design and operating parameters. Statistics were then applied to determine which parameters had a primary impact on emissions. These primary parameters were used to identify distinct groups of devices. Several quality ratings were assigned to each emission factor including the confidence interval, relative standard deviation, population rating, and source test method rating. A graphical user interface (GUI) was developed to display the emission factors and quality information for each group. The GUI allows the user to sort, list, print, and export emission factors from any emission factor group or combination of emission factor groups.

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CO	Carbon Monoxide
COC	Carbon Monoxide Oxidation Catalyst
CVAAS	Cold Vapor Atomic Absorption Spectrometry
CVR	Case Vapors Recovered
Cr	Chromium
D	Dioxins
DD	Device Description
DM	Demister
dscfm	Dry Standard Cubic Feet per Minute
dscf	Dry Standard Cubic Feet
EER	Energy and Environmental Research Corporation
EF	Emission Factor
EPA	Environmental Protection Agency
USG	United States Government
ESP	Electrostatic Precipitator
F	Formaldehyde
FBC	Fluidized Bed Combustor
FF	Fabric Filter
GFAAS	Graphite Furnace Atomic Absorption Spectrometry
H <sub>2</sub> S	Hydrogen Sulfide
HC	Hexavalent Chromium
HCHO	Formaldehyde
HCl	Hydrogen Chloride
HF	Hydrogen Fluoride
HI	Hydrogen Chloride
HNO <sub>3</sub>	Nitric acid
HO	Halogenated Organics
Hp	Horse Power
HS	Hydrogen Sulfide
HVLP	High Volume Low Pressure
ICAP	Inductively Coupled Argon Plasma
ICE	Internal Combustion Engine
IS	Internal Standards
LD	Laboratory Data or Location Data
LI	Lime Injection
lbs/MMcf	Pounds per Million Cubic Feet
lbs/Mgal	Pounds per Thousand Gallons
lbs/drum	Pounds per Drum
lbs/gal paint	Pounds per Gallon Paint
lbs/lbs powder	Pounds per Pounds Powder
lbs/lbs production	Pounds per Pounds Production
lbs/ton	Pounds per Ton
lbs/ton coke	Pounds per Ton Coke
lbs/ton production	Pounds per Ton Production
M	Metals
MMBtu	Million British Thermal Units
MC	Multicyclone
MMcf	Million Cubic Feet
MD	Method Description
MDL	Method Detection Limit
Mgal	Thousand Gallons

## ACRONYMS

4D 2378	Same as 2,3,7,8-Tetrachlorodibenzo-p-dioxin.
4D Other	Same as Tetrachlorodibenzo-p-dioxin other.
4D Total	Same as Tetrachlorodibenzo-p-dioxin total.
4F 2378	Same as 2,3,7,8-Tetrachlorodibenzofuran.
4F Other	Same as Tetrachlorodibenzofuran other.
4F Total	Same as Tetrachlorodibenzofuran total.
5D 12378	Same as 1,2,3,7,8-Pentachlorodibenzo-p-dioxin.
5D Other	Same as Pentachlorodibenzo-p-dioxin other.
5D Total	Same as Pentachlorodibenzo-p-dioxin total.
5F 12378	Same as 1,2,3,7,8-Pentachlorodibenzofuran.
5F 23478	Same as 2,3,4,7,8-Pentachlorodibenzofuran.
5F Other	Same as Pentachlorodibenzofuran other.
5F Total	Same as Pentachlorodibenzofuran total.
6D 123478	Same as 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin.
6D 123678	Same as 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin.
6D 123789	Same as 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin.
6D Other	Same as Hexachlorodibenzo-p-dioxin other.
6D Total	Same as Hexachlorodibenzo-p-dioxin.
6F 123478	Same as 1,2,3,4,7,8-Hexachlorodibenzofuran.
6F 123678	Same as 1,2,3,6,7,8-Hexachlorodibenzofuran.
6F 123789	Same as 1,2,3,7,8,9-Hexachlorodibenzofuran.
6F 234678	Same as 2,3,4,6,7,8-Hexachlorodibenzofuran.
6F Other	Same as Hexachlorodibenzofuran other.
6F Total	Same as Hexachlorodibenzofuran total.
7D 1234678	Same as 1,2,3,4,7,8-Heptachlorodibenzo-p-dioxin.
7D Other	Same as Heptachlorodibenzo-p-dioxin other.
7D Total	Same as Heptachlorodibenzo-p-dioxin total.
7F 1234678	Same as 1,2,3,4,6,7,8-Heptachlorodibenzofuran.
7F 1234789	Same as 1,2,3,4,7,8,9-Heptachlorodibenzofuran.
7F Other	Same as Heptachlorodibenzofuran other.
7F Total	Same as Heptachlorodibenzofuran total.
8D	Same as Octachlorodibenzo-p-dioxin.
8F	Same as Octachlorodibenzofuran.
AB2588	Air Toxics "Hot Spots" Information and Assessment Act of 1987
AB	Afterburner
AF	Air Filter
AI	Ammonia Injection
Al	Aluminum
APC	Air Pollution Control
APS	Air Pollution Control System
ATEDS	Air Toxic Emission Data System
B	Benzene
BAAQMD	Bay Area Air Quality Management District
BD	Blank Data
BF	Baffle Filter
BTX	Benzene, Toluene, and Xylene
C	Cyclone or Carbon
CD	Calibration Data
CARB	California Air Resources Board



mg/amp-hr	Milligram per Amp-hour
MMT	Multiple Metals Train
Ni	Nickel
NIOSH	National Institute of Occupation Safety and Hazard
NOx	Nitrogen oxides
O2	Oxygen
O	Oxygen
PA	Paint Arrestor
PB	Polyballs
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCDD	Polychlorinated Dibenzo-p-dioxin
PCDF	Polychlorinated Dibenzofuran
PE	Polyurethane
PH	Polycyclic Aromatic Hydrocarbons
ppbv	Parts per Billion Volume
PQL	Practical Quantitation Limit
PR	Process Rate
QA/QC	Quality Assurance/Quality Control
QD	Quality Assurance/Quality Control Data
RFG	Refinery Fuel Gas
ROC	Reactive Organic Compound
RSD	Relative Standard Deviation
S	Strokes per Cycle
SCAQMD	South Coast Air Quality Management District
SCC	Source Classification Code
SCR	Selective Catalytic Reduction
SD	Sample Data or Spray Dryer
SIC	Standard Industrial Classification
SO2	Sulfur Dioxide
SVOC	Semi-Volatile Organic Compounds
THC	Total Hydrocarbons
Ti	Titanium
TO	Thermal Oxidizer
VC	Vinyl Chloride
VOC	Volatile Organic Compound
WC	Water Curtain
WS	Wet Scrubber
WSN	Water Spray Nozzle
WSPA	Western States Petroleum Association
WT	Water Trough

critical to eliminate test results of unknown accuracy and device types which are not of primary interest. This allows for the best use of project resources. This section describes the procedures used to screen tests. Results from the initial screening also are provided.

### 3.1 Procedures

Table 2a-c lists the data types extracted from each test report. The information is divided into three categories including:

- **Report Information (Table 2a).** This information describes the complete report.
- **Device Information (Table 2b).** This information describes each device type tested. Each report can have multiple devices. For example, a report may include results for a boiler test and an IC engine test.
- **Substance Information (Table 2c).** This information describes measurements conducted on the fuel and air emissions for each device. For example, a boiler test may have included metals analysis of the fuel and PAH analysis of the stack emissions.

### 3.2 Results

All the information described above in Section 3.1 has been extracted from each report collected. Attachment 2 lists the device type, test documentation information available, and substances quantified for the fuel and air emissions.

Tables 3a and b summarize the test documentation information available and substances quantified for several device/process and material categories. Table 3a lists the percent of tests in each device/process and material category which provided device, QA/QC and method descriptions, sample, lab, calibration, location and blank data, and included enough information to develop emission factors. The devices and processes listed as required are those given in AB 2588 appendix D. Appendix D specifies source testing requirements for key device and process types. The greatest number of required tests were conducted on smelters and foundries. Of the 45 tests for this category, 42% provided enough information to develop emission factors as shown in Table 3a. The fuel or raw material feed rate or production rate and emission rate are required to calculate an emission factor. The main substances quantified for smelters and foundries are metals and hydrogen sulfide as shown in Table 3b. Metals, dioxin (secondary copper smelter only), and hydrogen sulfide tests are required for smelter and foundries.

Tables 3a and b also list several device and process types for which source testing is not required. Testing may have been conducted on these sources because of district requirements, a lack of accurate estimation techniques, or other facility specific concerns. Of the 773 tests evaluated, 510 are non-required tests. Gas fired internal combustion engines have the most source test data of any non-required category. Formaldehyde was quantified in 40% of the internal combustion engine tests.

### 3.3 Source Prioritization

To develop emission factors of known quality requires a detailed evaluation of each test collected. To conduct an effective evaluation, the test should include device and method

descriptions, and sample, laboratory, QA/QC, calibration, sample location, and blank data. In addition, the test must provide representative process rate information so that emission rates can be normalized to develop emission factors. To evaluate the quality of the collected tests, seven queries or search cases were conducted as shown in Table 4. Search cases 1-3 were for required tests and search cases 4-6 were for non-required tests. Search cases 1-6 required that process rates be available. Tests with process rates can be used to develop emission factors. Search case 7 included tests without process rates. Search cases 1 and 4 required that all supporting information be provided. These tests have the information necessary to develop emission factors of known quality. Search cases 2 and 5 did not require that QA/QC, calibration, or location data be provided. In general, this information is not of primary concern when assessing the accuracy of emission data. Search cases 3, 6, and 7 did not require any supporting information for the emission results. Test data matching these conditions cannot be effectively evaluated for quality. Table 4 shows that the number of tests matching the search cases ranged from 51 (search case 4) to 289 (search case 7). Overall search cases 1, 2, 4 and 5 would provide the best pool of data for emission factor development. In general, search cases 3 and 6 do not provide enough information to validate the results.

While supporting documentation is an important factor in determining which tests should be used to develop emission factors, the type of source also is important. For example, some source types have more widespread use and/or higher contributions to overall air toxic emissions. To focus on key device and process types, the following list of high priority source types was developed.

- 1.) Required tests.
- 2.) Standard and steady processes (incinerators, crematories, open burning, and flares are not considered steady processes while processes that burn multiple fuel types or hazardous wastes are not considered standard).
- 3.) Asphalt production, cogeneration (coal or coke), IC engines, metal platers, cement kilns (no hazardous waste), and coating operations are key source categories for the CARB.
- 4.) High emission sources (Table 5 lists major sources of organic emissions in the South Coast Air Basin from 1989).
- 5.) Source types with large populations.
- 6.) Non-refinery source types (Petroleum industry is already developing emission factors).

Using these guidelines, placing high priority on tests with sufficient documentation (search cases 1, 2, 4, and 5), and only considering tests with process rates, a list of first priority sources for emission factor development and detailed validation was developed as shown in Table 6. As shown in the Search Case column, some search case 6 sources were selected. In general, these sources were selected to increase the size of the sample for emission factor development or to ensure that a wide range of source types were represented. Search case 6 tests do not provide all of the information necessary to evaluate data quality. Table 6 also lists supporting information including Number of Tests, Control Device Used, Report Information, Report Year, Sample Location, and Substance Group as described in Tables 2a-c. In the Report Information columns, a yes (Y) or no (N) is provided if the report provides the specific type of information requested such as Device Description (DD). In the Substance Group columns, a yes (Y) is provided if substances in the group were quantified. For example, if Arsenic and Chromium were quantified in a test, a Y would be listed in the Metals (M) Substance Group column. A blank in the substance group column indicates no substances in the group were quantified.

Table 7 lists second priority tests. These tests are those remaining from search cases 1-6. Five second priority tests were used to replace rejected first priority tests. The remaining second priority tests may be used to develop emission factors in other projects. Table 8 lists third priority tests. It is unlikely that these tests would be used to develop emission factors since the screening analysis indicated that no process rates were provided. Tables 7 and 8 provide the same types of information described above for Table 6.

#### 4.0 Detailed Validation

The detailed validation procedures include checking to ensure the correct sampling and analysis procedures were used, qualifying significant problems such as high field blanks, checking calculations, and evaluating the accuracy of the test results. All methods needed to quantify the substances listed in AB 2588 appendix D have been reviewed including:

##### CARB Methods Reviewed

- 11 - Hydrogen Sulfide (1983)
- 12 - Inorganic Lead - (March, 1986)
- 15 - Hydrogen Sulfide - (June, 1983)
- 101A - Mercury - (1986)
- 104 - Beryllium - (1986)
- 106 - Vinyl Chloride - (June, 1983)
- 410A/B - Benzene - (March, 1986)
- 421 - Hydrogen Chloride - (January, 1987 and December, 1991)
- 422 - Volatile Halogenated Organics - (January, 1987 and December, 1991)
- 423 - Inorganic Arsenic - (January, 1987)
- 424 - Cadmium - (1987)
- 425 - Total and Hexavalent Chromium - (January, 1987 and September, 1990)
- 428 - PCDD/PCDF and PCB - (March, 1988 and September, 1990)
- 429 - PAH - (September, 1989)
- 430 - Aldehydes - (September, 1989 and December, 1991)
- 433 - Nickel - (1989)
- 436 - Trace Metals - (March, 1991 and 1992)
- EPA MMT - Trace Metals

Attachment 3 provides validation procedures for each method. These procedures were developed using experience gained conducting air toxic source tests, and reviewing AB 2588 test reports, EPA and CARB test method documentation and CARB method review sheets. Primary parameters were identified to ensure critical data quality indicators were checked. The primary parameters provide an overall assessment of data quality but may not provide an indication of why a particular problem occurred. For example, if a method required field, reagent, and method blanks, only the field blank was considered a primary parameter because it indicates the total interference and/or contamination resulting from the field and laboratory activities. However, the field blank does not indicate if the contamination resulted from the field and/or laboratory activities. For this project, it was more important to evaluate the overall quality of the emissions data.

Only those parameters provided in the test reports in the form required by the method were checked. For example, if the method required that field blank levels over 20% be flagged, the flags were transferred from the test report to the emission factor database. However, if the field blank levels were reported but not divided by the sample value, the ratios were not calculated. Instead a notation was made to indicate that field blanks were collected and analyzed but the results

were not flagged appropriately. The only exceptions to this rule were for CARB Methods 430 and 436. For these two methods, field blank ratios were calculated because they were rarely reported by the contractors.

All versions of the methods effective during the AB2588 program have been reviewed. This allowed review of source test data which was gathered using old test methods. Review sheets were not prepared for the fuel analyses because these results were not extracted from the reports. Fuel analyses do not provide a direct measurement of emissions from a source but are used instead to estimate emissions. The emission factors developed during this program had to provide accurate assessments of emissions.

#### 4.1 Detailed Validation Results

##### Summary

- 200 tests were selected for detailed data validation and extraction.
- 32 tests were eliminated from this process.
- 168 tests had data validated and extracted.

This section presents the results of the method validation and calculation checks discussed above for the 200 tests selected for air toxic emission factor development. A test includes the quantification of air toxics and other emissions from a device or group of interconnected devices operating under one condition. Specifically, this section first chronicles the major problems associated with the data validation and extraction procedures and then discusses the details of the method validation results.

Overall, of the 200 tests that passed the initial screening and were selected to undergo the method validation and calculation check procedures, 32 tests were eliminated from the process. These tests were excluded for various reasons. 10 tests were excluded from the detailed validation screening because emission factors could not be calculated from the reported data. Originally these tests passed the initial screening because at first glance the tests appeared to report all the necessary data to develop a validated emission factor, but a more detailed review of the reports revealed various data deficiencies. In some cases, what was initially identified as a normalizing factor was incorrect and another appropriate process rate could not be found in the report.

9 tests were automatically dropped from the original 200 tests because in some cases reviewers counted each device described in the report as a test. As described previously, a test includes the quantification of air toxics and other emissions from a device or group of interconnected devices. Some facilities have a group of devices which emit to a common stack. For example, one facility in the screening database has six steam generators exhausting to one stack. In this instance, some reviewers would have counted each device as a separate test for a total of 6 tests. However, only one test was conducted. By counting all of the devices instead of the tests within a given report, the number of tests became inflated which in turn over estimated the total number of tests reviewed during the initial screening.

Another 2 tests were excluded because separate front half and back half analyses were conducted for CARB Method 436. These tests were excluded according to the CARB's instructions.

4 more tests were eliminated because they contained no air toxics data. These 4 tests were all from one report. The units tested were four separate internal combustion engines. The

emissions sampled during these tests included NO<sub>x</sub>, O<sub>2</sub>, CO, THC, Methane, and ROCs.

The remaining tests were eliminated from the detailed validation for the following reasons. One test was dropped because all sampling during the test program was done non-isokinetically; an additional 2 tests were eliminated from the validation procedures because two fuel types were fired during sampling; and finally, 4 tests were dropped because all calculation checks failed. Considering 32 tests were dismissed from the original group of 200, a total of 168 tests had data validated, checked, and extracted.

#### 4.1.1 Validation Problems and Calculation Check Failures

##### Summary

- Of all tests validated, the most common problem was the lack of a full set of internal standards used during Method 429 (PAH) analyses.
- Of the 21 calculation check failures documented, 13 of them were Method 430 (HCHO) failures.

Major problems encountered during the method validation and extraction procedures are documented in Table 9. The table lists all 200 tests according to Report ID, Device ID, Number of Tests, Contractor ID, Device Type, Material Used, Review Date, Comment, and Calculation Check Status. These criteria are discussed in detail below:

- **Report ID:** This is the number that was assigned to a device or similar group of devices in each document during the initial screening phase. Similar devices all have the same primary characteristics such as an internal combustion engine. The report ID is a four digit number followed by a letter. The four digit number distinguishes different documents. A unique letter is assigned to each device or group of devices in a document. If, for example, a document contained results for two boilers and an internal combustion engine, the devices would be given the same four digit number (####), but each would have its own letter identifier (e.g., ####A for the two boilers and ####B for the ICE).
- **Device ID:** This three digit number is assigned to each device or group of interconnected devices upon entry into the database. Some facilities have a group of devices which emit to a common stack. For example, one facility in the screening database has six steam generators exhausting to one stack. These six steam generators would receive a single device ID. Each engineer entering data had his/her own assigned set so the person responsible for validating and extracting the results from a particular test could be tracked. In many cases, the report ID and device ID can be used to reference a device or group of interconnected devices. In some cases, however, a report ID references multiple devices. For example, report ID 2409A references 14 devices, device IDs 114 to 127, as shown in Table 9.
- **Number of Tests:** As mentioned earlier, a test includes the quantification of air toxics and other emissions from a device or group of interconnected devices operating under one condition. A condition is defined as set of operating constraints which are fixed during a test. For example, one condition would be a boiler fired on natural gas under normal load. Another condition might be the same boiler fired on fuel oil under normal load. In this case, a single device ID would be assigned and 2 tests would be listed in Table 9.
- **Contractor ID:** This field lists the ID of the contractor responsible for conducting the test.

The name of the contractor is not provided to protect the source to the data.

- **Device Type:** This field displays the type of device whose emissions are characterized in the test.
- **Material Used:** This field describes the materials consumed by each device or group of interconnected devices during all tests. In other words, if the device is a combustion source, this field lists the fuels that were fired during each test. If the device is a non-combustion source, this field lists the materials processed by the device.
- **Review Date:** This is the date when the method validation and extraction were completed.
- **Comment:** This field lists the problem number. If a significant problem was discovered while validating a test, a problem number was placed in the "Comment" field. If the problem was new and had not already been encountered, then a new number was added to the list. This was continued until all major problems had been documented. There were a total of 15 major problems encountered during the data validation and extraction procedures.
- **Calculation Check Status:** This field describes each test's performance during the calculation checks. The field lists four codes: F - Failed calculation check; P - Passed calculation check; NR - Calculation check not required because calculations were checked for another device in the report; and, ND - Not enough data to check calculations. If a test failed a calculation check, the "F" is followed by the method number that failed the check. A "P" is listed only if all calculation checks passed. The ND code means one of two things, either there is not enough data in the test report to conduct a calculation check or there is not enough information in the test report to verify whether the check passed or failed. Lastly, an "NR" implies that there was more than one device in the test report. In such cases, it was assumed that the contractor conducted all calculations in the same fashion and to perform calculation checks for the same method on all devices would be redundant.

Listed below is an itemized summary of Table 9. It lists all major problems (#1-15) and which reports experienced them. Also, a brief explanation of EER's course of action following the problem is given. Problems associated with calculation checks are also discussed. It should be noted that each line in Table 9 describes a device, group of interconnected devices, or group of similar devices. If a device ID is given the line describes a device or group of interconnected devices.

- (1) An emission factor cannot be calculated for report 2551A, 2322A, 2195A, 2577B, 2580A, 2205A, 2576B, 2207A, and 2331A. The results were not extracted or validated.
- (2) The original estimate of the number of tests for reports 2053A, 2053B, 2067A, and 2400A is incorrect. The initial screening indicated that reports 2053A, 2053B, 2067A, and 2400A had 3, 2, 5, and 4 test, respectively. However, during the detailed screening it was found that each of these reports has only one test except report 2067A which has 2 tests. This overestimate is due to an incorrect accounting of the number of tests. Report 2053A has 3 devices but they are all vented by a common stack. This is one test and the data represents emissions of all three devices on a collective not an individual basis. Consequently, this report only represents a single test. To retain an accounting of the total number of tests originally selected for validation, a line was added to Table 9 showing the difference

between the original device estimate and the correct estimate. A second line was added to the table to reflect the correct number of tests in that report.

- (3) Dioxins/Furans and PAH were sampled using a single train for reports 2544A, 2550A, 2104A, 2478A, 2114A, 2484A, and 2541A. Initially, the results from these reports were not reviewed or extracted per CARB instructions. However, after data validation operations revealed that approximately half of the dioxin/PAH tests were sampled using a single train, the CARB reconsidered its initial position, and all results were validated, checked, and extracted as reported. All tests which used combined sampling and analysis for Dioxin and PAH were noted in the database.
- (4) Separate front and back-half analyses were conducted for Method 436 for reports 2070A and 2311A. The results were not validated or extracted per the CARB's instructions.
- (5) An outdated method was used without CARB approval for report 2317B. The November 1990 draft of CARB 436 was used to quantify metals from report 2317B. Since the test was conducted in June of 1991, the March 1991 version of CARB 436 should have been used. Since approval was not granted by the CARB to use the November 1990 version, the results were not validated or extracted.
- (6) Method 421 sampling was not isokinetic for reports 2053A, 2053B and 2053C. When the stack temperature is below 250° F, Method 421 requires that isokinetic sampling be conducted. Reports 2053A, 2053B, and 2053C did not use isokinetic sampling even though the stack temperature was less than 250° F. As required by CARB, the results were neither reviewed nor extracted.
- (7) Naphthalene was sampled using Method 410 for report 2409A. Since naphthalene was quantified using an incorrect method these results were not validated or extracted.
- (8) Method 429 sampling was not isokinetic for reports 2375B and 2375C. The sampling methodology for these tests was modified for non-isokinetic testing by eliminating the glass nozzle and probe from the sampling train. The diesel IC engines were sampled using a 3/8 inch diameter glass probe placed in the center of the exhaust stack. The glass probe was connected directly to a Teflon sample line. No mention of CARB approval was given for these modifications. The results were validated, extracted, and noted in the database.
- (9) A full set of Method 429 internal standard recoveries was not reported for reports 2530A, 2552A, 2599L, 2426A, 2011A, 2026A, 2424A, 2525A, 2378A, 2419A, 2500A, 2421A, 2425A, 2386A, 2513C, 2513A, 2525B, 2028A, 2549A, 2533A, 2549B, 2537A, 2554A, 2150A, 2593A, 2375C, 2375B, 2372A, 2387A, 2391A, 2317B, 2483A, 2101B, and 2043A. CARB Method 429 requires spiking of 14 internal standards into each sample. For no known reason, these tests did not spike all 14 standards. Instead, most spiked and reported recoveries for about half of them. The results were validated and extracted and noted in the database.
- (10) Limited air toxics information was found in report 2352A. This report includes results from tests on four devices. The tests were conducted for rule 74.9.B not AB2588. Information was not extracted for the 4 devices tested in this report.
- (11) No calculation checks were required for report 2076A. Only Method 422 was used during sampling. Since Method 422 requires no calculation checks, the results were validated and

extracted as reported.

- (12) Limited supporting documentation was found in reports 2567A and 2101B. For report 2567A, the report contained metals and benzene data for only one test run. A calculation check was conducted for EPA MMT, but a method validation could not be done because of a lack of documentation. For report 2101B, calculation checks could not be conducted because of insufficient information. Where possible, all results were validated, extracted, and noted in the database.
- (13) Sampling was conducted for only a single run for report 2567A. The results were validated, extracted, and noted in the database.
- (14) All sampling was done non-isokinetically for report 2134A. Methods 421, 425, 428, 429, and 436 were all conducted non-isokinetically. Consequently, the results were neither validated nor extracted.
- (15) Two different types of fuel were fired simultaneously for report 2027A. After first review, it appeared that report 2027A fired both fuel oil and natural gas into the turbine during sampling. A second look revealed this may not be the case. However, there is an added complication in that there are two ducts venting this process and neither were sampled simultaneously. Instead of sampling at the stack for the entire testing program, sampling was conducted at one duct for one run and then switched to the second duct for the next run and back again for the third. Because of the poor unity of the testing program and the lack of clarity in regards to fuel types, these results were not validated or extracted.
- (F) Reports 2530A (Method 429), 2507A (430), 2550A (430), 2378A (425, 430), 2491A (430), 2132A (425), 2133A (425), 2186A (425), 2460B (430), 2478A (425), 2593A (430), 2007A (430), 2393A (All), 2496A (430), 2497A (430), 2400A (430), 2043A (429, 430), 2493A (430), and 2508A (430) failed calculation checks.

Method 430: For report 2493A, the Method 430 failure occurred when the contractor multiplied the results by 1E9 when they were already converted to ppbv. EER corrected the error and entered the data. Report 2550A also failed Method 430. For this report, the error occurred during the conversion of a measured sample volume to a standard sample volume. The equation was correct but the volumes were off by an order of magnitude. EER corrected the error and entered the data. All of the remaining reports which failed Method 430 did not provide the reporting limit when the sample to blank ratio was less than 5. The results for these reports were not corrected.

Method 429: For report 2530A, there was a 15% difference between the reported and calculated Method 429 results. No reason was found for the difference so the calculated results were entered. The same is true for report 2043A. There was a significant difference between the calculated and reported sample concentration, and no reason for the difference was found. In this case the lab catch weights and sample volumes were entered.

Method 425: For report 2378A, the wrong lab data was used to calculate the Method 425 results. The error was corrected by using the appropriate lab data. Report 2478A failed Method 425 through the use of an incorrect value. Instead of using the sample volume from the 425 train, the contractor used the sample volume from the 436 train. Reports 2132A, 2133A, and 2186A quantified hexavalent chromium from plating operation chrome tanks. For these reports, the calculated and reported results did not match. After a detailed

review of the results, no apparent reason for the difference was found due in part to poor documentation of the calculation procedures by the contractor. The results were not extracted or validated and additional tests were selected from the second priority list when necessary.

Other: Report 2393A failed all calculation checks because of a calculation error. For all method results, the stack area was calculated incorrectly. Because the stack area is used to calculate the stack flow, all reported mass rates are incorrect. Due to the time required to correct the mass rates, data was not extracted from this report.

#### 4.1.2 Detailed Validation Flags

##### Summary

- The majority of detailed flags compiled denote poor reporting procedures by the contractors, not actual parameter failures.

After all the tests results were validated and extracted, the method validation sheets were compiled and the validation flags were entered into a database. The validation flags were then condensed and exported to a spreadsheet for tabular summation. The results of the detailed data validation are summarized in the tables located in Attachment 4. There is one table per method. Each test method has a set of validation parameters that are used to verify proper sampling and analytical procedures. These parameters are organized into sections by type of sampling or analytical check. The sections are in boldface and shaded gray in the tables. A detailed review of a source test report can produce three basic responses with the corresponding flag notations for each validation parameter;

- Pass: A blank cell in the table
- Insufficient information to report a parameter: R, V, N, P, RN, PN
- Fail: Y, RF, PF

Consider Method 436 (1992) as an example. This method is applicable to the determination of trace metal emissions from stationary sources, and requires some of the more complex validation parameter checks. The table shows a total of 14 stacks (Stack IDs: 10110, 10310, 10410, 10610, 12810, 13810, 13910, 16510, 42410, 42510, 43010, 43110, and 43310) were sampled and analyzed using this method. The first three digits of the stack ID are the device ID and the last two digits identify each stack on the device. The stack ID is used in Attachment 4 because some devices have multiple stacks. Each of these stacks may have been tested and therefore validation was conducted on each stack. The "Number of Sample Runs < 3" check shows a blank cell for each stack. This means that 3 method 436 sample runs were conducted at the stack listed. The following is a brief explanation of each notation with an example.

- R This notation is used when it cannot be determined whether the parameter was conducted or not. It could not be determined whether field reagent blanks were collected once per test for nine stacks (10110, 10310, 10410, 10510, 10610, 13910, 42410, 43110, and 43310).
- V If values were not provided for a parameter, this notation is used. Four stacks (10110, 16510, 42410, and 42510) show values were not provided for pre-test

leak rate.

- N This notation is used when a parameter was not conducted. Dry gas meter pre- and post-test checks were not conducted for two stacks (10110 and 13910).
- P This notation is used specifically for the Pitot tube semi-annual calibration sheet parameter. The validation sheet asks if the semi-annual calibration sheet is included in the report. Ten stacks (10310, 10410, 10510, 10610, 12810, 13910, 16510, 42410, 43010, and 43110) failed to do so.
- RN\* Similar to the V notation but applied to more detailed parameters that require run quantification. Method 436 (1992) does not provide an example for this notation. Method 104, however, displays an RN notation. Three pre-test leak rates could not be checked for one stack (43510).
- PN\* Again, similar as the V notation but applied to more detailed parameters that require run and substance quantification. One stack (10310) shows that values for three matrix spike recoveries could not be checked.
- Y This notation is used when a parameter was conducted and failed. One stack (10610) failed the swirl check.
- RF\* Similar to the Y notation but applied to more detailed parameters that require run quantification. One run reported isokinetic variation failure for one stack (43310).
- PF\* Again, similar to the Y notation but applied to more detailed parameters that require run and substance quantification. For one stack (10310), it shows the sample/field ratio is less than 5 for thirteen points.
- \* Numbers before these notations represent how many times a parameter failed or could not be checked.

The following is a list summarizing the validation tables for each method. The list contains those parameters which were flagged for 50% or more of the devices in each table unless noted. By far, the most prevalent type of flags found in the tables are those associated with reporting. Still, there are plenty of failures which are noteworthy, but they are much less frequent. Note, primary validation parameters are underlined and failures are in italics. For more details on specific parameter failures, please see the tables in Attachment 4.

Method 11 (1983): Insufficient reporting - Dry gas meter pre- and post-check  
Insufficient reporting - Leak check  
Insufficient reporting - Reagent blank not conducted daily

Method 12 (1986): Insufficient reporting - Swirl check  
Insufficient reporting - Dry gas meter pre- and post-check  
Insufficient reporting - Semi-annual pitot tube calibration  
*Failure- Field reagent blank not used to correct samples*  
*Failure - Atomic absorption spectrometry not conducted in triplicate*

Method 101A (1986): Insufficient reporting - Swirl check  
Insufficient reporting - Nozzle size check

- Insufficient reporting - Dry gas meter pre- and post-check  
 Insufficient reporting - Semi-annual pitot tube calibration  
 Insufficient reporting - Filter temperature  
 Insufficient reporting - Flow rate  
*Failure* - Field reagent blank not used to correct samples  
*Failure* - Combined analysis not used
- Method 104 (1986): Insufficient reporting - Swirl check  
 Insufficient reporting - Nozzle size check  
 Insufficient reporting - Dry gas meter pre- and post-check  
 Insufficient reporting - Semi-annual pitot tube calibration  
 Insufficient reporting - Flow rate  
 Insufficient reporting - Field reagent blank not conducted for acetone  
*Failure* - Field reagent blank not used to correct samples
- Method 410A (1986): Insufficient reporting - Tedlar bag contamination check for all bags  
 Insufficient reporting - Leak check
- Method 421 (1987): Insufficient reporting - Swirl check  
 Insufficient reporting - Nozzle size check  
 Insufficient reporting - Dry gas meter pre- and post-check  
 Insufficient reporting - Semi-annual pitot tube calibration  
 Insufficient reporting - Field reagent blank not used to correct sample peaks on the chromatograph  
 Insufficient reporting - Duplicate not conducted for each sample  
 Insufficient reporting - Duplicate percent difference > 5%
- Method 422 (1987): Insufficient reporting - Tedlar bag contamination check for all bags  
 Insufficient reporting - Tedlar bag contamination levels
- Method 422 (1991): Insufficient reporting - Tedlar bag contamination check for all bags  
*Failure* - Tedlar bag contamination levels not reported  
 Insufficient reporting - Leak check > 5% of sample rate  
 Insufficient reporting - Duplicate values > 3 x RSD
- Method 423 (1987): Insufficient reporting - Swirl check  
 Insufficient reporting - Nozzle size check  
 Insufficient reporting - Dry gas meter pre- and post-check  
 Insufficient reporting - Semi-annual pitot tube calibration  
 Insufficient reporting - Filter temperature
- Method 424 (1987): Insufficient reporting - Swirl check  
 Insufficient reporting - Nozzle size check  
 Insufficient reporting - Dry gas meter pre- and post-check  
 Insufficient reporting - Semi-annual pitot tube calibration  
 Insufficient reporting - Field reagent blank not conducted for two filters and 0.1N HNO<sub>3</sub>  
*Failure* - Field reagent blank not used to correct sample  
 Insufficient reporting - Atomic absorption spectrometry not conducted in triplicate

- Method 425 (1987): Insufficient reporting - Swirl check  
 Insufficient reporting - Nozzle size check  
 Insufficient reporting - Dry gas meter pre- and post-check  
 Insufficient reporting - Semi-annual pitot tube calibration
- Method 425 (1990): Insufficient reporting - Swirl check  
 Insufficient reporting - Nozzle size check  
 Insufficient reporting - Probe proof not conducted per probe  
 Insufficient reporting - Probe proof total chrome greater than detection limit  
 Insufficient reporting - Reagent blank not used to correct sample
- Method 428 (1988): Insufficient reporting - Swirl check  
 Insufficient reporting - Nozzle size check  
 Insufficient reporting - Dry gas meter pre- and post-test  
 Insufficient reporting - Semi-annual pitot tube calibration  
 Insufficient reporting - Surrogate standards not conducted once per test  
 Insufficient reporting - Surrogate standards percent recovery  
 Insufficient reporting - Laboratory control spike percent accuracy  
 Insufficient reporting - Internal standards not conducted once per sample  
 Insufficient reporting - Internal standards percent recovery
- Method 428 (1990): Insufficient reporting - Swirl check  
 Insufficient reporting - Nozzle size check  
 Insufficient reporting - Semi-annual pitot tube calibration  
 Insufficient reporting - Laboratory control spike percent accuracy
- Method 429 (1989): Insufficient reporting - Swirl check  
 Insufficient reporting - Nozzle size check  
 Insufficient reporting - Semi-annual pitot tube calibration  
 Insufficient reporting - Surrogate standards percent accuracy  
 Insufficient reporting - Laboratory control spike percent accuracy  
 Insufficient reporting - Internal standards percent accuracy
- Method 430 (1989): Insufficient reporting - Dry gas meter pre- and post-check  
 Insufficient reporting - Pre- and post-test sample flow not within 15%  
 Insufficient reporting - Matrix spike not conducted per test  
 Failure - Matrix spike not reported
- Method 430 (1991): Insufficient reporting - Calibration check for each rotometer  
 Insufficient reporting - Rotometer calibration sheet  
 Insufficient reporting - Pre- and post-test sample flow not with 15%  
 Failure - Reporting limit not given (sample/field blank < 5)  
 Insufficient reporting - Sampling date not within 2 days of reagent blank check  
 Failure - Impingers not analyzed separately
- Method 433 (1989): Insufficient reporting - Swirl check  
 Insufficient reporting - Dry gas meter pre- and post-check  
 Insufficient reporting - Post-test leak check  
 Insufficient reporting - Field reagent blank not conducted on two filters and

### 0.1N HNO3

*Failure* - Field reagent blank not used to correct sample

*Failure* - Atomic absorption spectrometry not used

- EPA MMT (1989):
- Insufficient reporting - Swirl check
  - Insufficient reporting - Dry gas meter pre- and post-check
  - Insufficient reporting - Semi-annual pitot tube calibration
  - Failure* - Field reagent blank not used to correct sample
  - Insufficient reporting - Duplicate percent difference (ICAP)
  - Insufficient reporting - Not conducted per run (GFAAS)
  - Insufficient reporting - Not conducted per run (CVAAS)
  - Insufficient reporting - Matrix spike percent recovery (GFAAS)
  - Insufficient reporting - Matrix spike percent recovery (CVAAS)
- Method 436 (1992):
- Insufficient reporting - Swirl check
  - Insufficient reporting - Nozzle size check
  - Insufficient reporting - Semi-annual pitot tube calibration
  - Failure* - Sample/field blank < 5
  - Insufficient reporting - Field reagent blank not collected once per test
  - Failure* - Field reagent blank not used to correct sample
  - Insufficient reporting - Duplicate percent difference (ICAP)
  - Insufficient reporting - Duplicate not conducted per run (GFAAS)
  - Insufficient reporting - Duplicate not conducted per run (CVAAS)
  - Insufficient reporting - Matrix spike not conducted on front- and back-half (GFAAS)
  - Insufficient reporting - Matrix spike percent recovery (GFAAS)
  - Insufficient reporting - Matrix spike not conducted on one nitric impinger (CVAAS)
  - Insufficient reporting - Matrix spike percent recovery (CVAAS)

Lastly, the tables in Attachment 4 do not specify validation results for individual hazardous air pollutants. Consequently, one cannot determine if any one substance failed method parameters more than others by using these tables alone. Attachment 5, however, contains a table which provides such information. The table lists how many times a particular substance failed a validation parameter. It includes the Method, Version (Year), Failed Check, Substance, and Count. The table presents results for both isokinetic and non-isokinetic trains.

## 5.0 Data Extraction

Data extraction is the process of entering design and operating information, and emission results into a database. After the validation activities were completed as described in Section 4.0, the emissions data were extracted. If a critical validation parameter was not satisfied for a method, such as analyzing the front- and back-half component of a CARB 436 train, the emissions data for the method were not extracted. If several methods were not suitable for extraction in a single test report, the complete test report was rejected. If the test report did not provide sufficient information to develop emission factors, it also was rejected. For each test that was not rejected, the following information was extracted.

#### Device Information

- 1.) Source classification code (SCC)
- 2.) Standard industrial code (SIC)
- 3.) Control device type
- 4.) Fuel type or material processed
- 5.) Capacity
- 6.) Company
- 7.) Location (City, Address, Zip, Facility ID, District Code)
- 8.) Report Date

#### Sample and Analysis Procedures

- 1.) Sampling method
- 2.) Analysis method
- 3.) Contractor
- 4.) Detection limit based on MDL or PQL

#### Run Information

- 1.) Process rate and unit (must be appropriate for emission factor development)
- 2.) Site run ID
- 3.) Date of Run
- 4.) Fuel/Material type burned during test
- 5.) Description of operation during test
- 6.) Stack flow rate (dscfm)
- 7.) Stack moisture (%)
- 8.) Stack temperature (F)
- 9.) Stack oxygen (%)

#### Emission Information

- 1.) Substance
- 2.) Detection indicator (Detected or Not Detected)
- 3.) Data quality flags
- 4.) Concentration value and unit
- 5.) Emission rate value and unit
- 6.) Emission factor value and unit

### 6.0 Emission Factors

A procedure was developed to provide emission factors of known quality for a wide range of air toxics and source types. This procedure considers the design and operation of the sources, process stream characteristics, data quality, source population size, and emission factor variability. The procedure includes the following steps:

- Identify Design and Operating Parameters
- Identify Normalizing Units
- Assign Run Specific Method Ratings
- Calculate Run Specific Emission Factors
- Identify Major and Sub Group Evaluation Parameters
- Compile Detailed Data Listings
- Conduct Outlier Analysis
- Identify Sub Groups
- Calculate Emission Factors for each Sub Group
- Assign Sub Group Method and Population Ratings
- Assign CARB Overall Quality Rating
- Assign EPA Overall Quality Rating

Each of these steps is discussed below. The discussion includes a brief background which describes why the step is needed and the approach used. The background is followed by a presentation of the results of applying the subject step to the data.

#### 6.1 Design and Operating Parameters.

*Background.* To develop emission factors, sources must be grouped by their design and operating characteristics. Ideally, emissions from devices in each group should be similar or have low variability when normalized. To define design and operating parameters, a literature review was conducted. AP-42 was one of the best sources of information identified. In addition to AP-42, EER used its experience in past programs such as the WSPA air toxic emission factor project to define design and operating parameters. Table 10 lists key parameters which may affect emissions from asphalt production, cement kilns, glass manufacture, metal furnaces, polystyrene manufacture, chrome plating, surface coating, external combustion, internal combustion, and gas turbines.

*Results.* Few reports contained all of the information listed in Table 10. Basic system type, feed material or fuel, and air pollution control system type were available for most sources. Unit capacity and manufacturer were available for approximately half the sources. Some information was available for metal furnace type and surface coating spray method. If a primary parameter was not described in a report, the appropriate district and/or manufacturer was contacted. For example, several districts were contacted to determine the air pollution control system types used for the fluidized bed combustion devices investigated. In addition, several manufacturers were contacted to determine reciprocating internal combustion engine specifications such as strokes per cycle.

#### 6.2 Normalizing Units.

*Background.* An emission factor characterizes air toxic emissions as a ratio of the amount of pollutant released to a process related parameter. Emission factors are typically expressed in terms of mass of emission per mass or volume of fuel or material fed or product produced. Thus, the emission rate is normalized by the production rate or by the feed rate of fuel or material. This method of normalizing assumes that emissions are directly proportional to production rate or fuel or material feed rate. Based on established procedure, normalizing units were assigned based on the source classification codes (SCC).

*Results.* The first step in determining the appropriate normalizing units is to assign SCCs. Using a SCC look-up table from the EPA and descriptions provided in the test reports, SCCs were assigned for each test. Table 11 lists the SCCs assigned. For several tests, no SCC was available which adequately described the test. For example, several of the reciprocating internal combustion engines and one gas turbine were fired on field gas. For these sources, a natural gas SCC was used as noted in Table 11. In addition, one steam generator and one heater fired natural and process gas simultaneously. SCCs were available for natural gas and process gas separately. However, a SCC was not available for simultaneous burning of natural and process gas. Therefore, a dummy SCC was assigned as shown in Table 11. For the internal combustion engines and heaters, additional SCCs must be requested from the EPA. The required normalizing units for each SCC also are provided in Table 11. Emission factors have been expressed in these units.

### 6.3 Run Specific Method Rating.

*Background.* To compare and evaluate test results, it is important to denote the test methods that were used and the level of documentation that was provided. Various systems have been developed to categorize test methods and the level of documentation. For example, the EPA developed the system described below.

#### EPA Method Rating

- A When tests are performed by a sound methodology and are reported in enough detail for adequate validation.
- B When tests are performed by a generally sound methodology but lack enough detail for adequate validation.
- C When tests are based on an untested or new methodology or are lacking a significant amount of background data.
- D When tests are based on a generally unacceptable method but the method may provide an order-of-magnitude value for the source.
- U Unrateable.

The EPA method ratings were used for the Factor Information Retrieval (FIRE) system which includes criteria and air toxic emission factors. For the CARB emission factor project the EPA system was modified to distinguish between EPA and CARB methods as well as tests which provide sufficient documentation and those that do not. The method rating system used for CARB emission factor project is described below.

#### CARB Method Rating

- A Test was performed using a new or old CARB methodology and sufficient documentation was provided to validate the results.
- B Test was performed using a new or old EPA methodology and sufficient documentation was provided to validate the results.
- C Test was performed using a new or old CARB methodology and insufficient documentation was provided to validate the results.
- D Test was performed using a new or old EPA methodology and insufficient documentation was provided to validate the results.
- E An assumption was made in the emission factor calculation which could significantly affect the accuracy of the results. Methods which do not have validation check procedures also were rated under this category.
- F Emission data is unacceptable for inclusion in emission factor database. If a sampling problem or process upset occurred which significantly impacted the emission results, the emission results were excluded from emission factor calculations. A statistical test was used to identify outliers as described in section

6.7.

\*\*It should be noted that the EPA methods are not considered inferior. However, the majority of the test methods were CARB's because they were mandated by the Hot Spots program. An EPA method could be used if there was no corresponding CARB test method or if the source asked for an equivalency determination. CARB and EPA test methods are different in many cases and can lead to different results. CARB test methods were rated higher than EPA's to provide consistent test result comparisons.

A test received an A or B (C or D) rating if a specified number of primary validation parameters could be checked. Primary validation parameters are those that indicate overall contamination, poor recovery, and imprecision. Primary parameters are identified in Table 12 for CARB and EPA methods. The table also provides the number of primary parameters per method and the number of primary parameters required to determine if sufficient documentation was provided. The number of parameters required to determine if sufficient documentation was provided was based on the following criteria.

Primary Parameters	Sufficient Documentation if
0 to 2	0 Missing
3 to 4	1 Missing
5 to 6	2 or fewer Missing

*Results.* Table 13 summaries the method ratings by method before the emission factor calculations and outlier analysis. The table lists the number of times the method was used for the tests extracted and validated during this project. Several methods received E ratings because no validation check procedures have been developed. These methods cover a small fraction of the data. Assignment of additional E and F method ratings is discussed in Sections 6.4 and 6.7, respectively.

6.4 Run Specific Emission Factor Calculation.

*Background.* A source test usually includes three runs per sample method. Emission factors must be calculated for each of these runs. Once appropriate groups have been defined (see Sections 6.5 and 6.8), run emission factors from one or more source tests are averaged together. In general, emission factors are calculated on a run basis using feed or production rates and air toxic emission rates. For combustion sources, when feed rates are not available, F-Factors can be used in combination with the stack oxygen and air toxic emission concentration using the following equation.

$$EF = FF*HV*(21/(21-O2))*C$$

For Gas Fired:

- EF = Emission Factor, lb/MMcf
- FF = Fuel F-Factor, dscf @ No Excess Air/MMBtu
- HV = Fuel Heating Value, MMBtu/MMcf
- O2 = Stack Oxygen
- C = Substance Concentration, lb/dscf @ Stack Oxygen

For Liquid Fired:

EF = Emission Factor, lb/Mgal  
FF = Fuel F-Factor, dscf @ No Excess Air/MMBtu  
HV = Fuel Heating Value, MMBtu/Mgal  
O2 = Stack Oxygen  
C = Substance Concentration, lb/dscf @ Stack Oxygen

For Solid Fired:

EF = Emission Factor, lb/ton  
FF = Fuel F-Factor, dscf @ No Excess Air/MMBtu  
HV = Fuel Heating Value, MMBtu/ton  
O2 = Stack Oxygen  
C = Substance Concentration, lb/dscf @ Stack Oxygen

*Results.* Run specific emission factors were calculated for each source in the appropriate unit (see Table 11). For several sources, default parameters were used or other assumptions were made to calculate emission factors because the appropriate data was not provided in the source test report. Table 14 lists the sources which required assumptions to calculate emission factors. The following types of assumptions or default parameters were used as shown in Table 14.

Assumed  
Density (D):

For several tests a density was required to convert the process rate into the appropriate normalizing parameter. For example, the emission factor may have been lbs/Mgal and the feed rate was provided in lbs/hr. For these sources a density was required to convert the mass feed rate to a volume feed rate. When the feed material was well characterized, the method rating was not changed to E. For example, distillate fired turbines were not rated as E but coating operations were when a density was not provided.

Assumed  
Heating Value (H):

Three sources required that a heating value be assumed to calculate the emission factor. All of these sources were fired on well characterized fuels and since it is suspected that the heating value will not vary significantly, no revision of method rating was required.

Assumed  
Feed Equals  
Production (FEP):

Four sources required the assumption that feed equals production. Emission factors for cement kilns, glass furnaces, and asphalt production must be expressed in lbs per ton production. The test reports for these sources only provided the feed rate of raw materials. To calculate the emission factor, the production rate was assumed to equal to the feed rate and a method rating of E was assigned.

Assumed  
Oxygen:

For device 140 an oxygen measurement was not available for the VOC sampling. The oxygen level was assumed to be equal to the reading from other measurement methods and the method rating was set to E.

## 6.5 Major and Sub Group Evaluation Parameters

*Background.* A key step in the emission factor development process is to identify devices which have similar designs and operation. The design and operating parameters selected to categorize the devices should impact air toxic emissions. If the parameters are defined appropriately and correct normalizing units are assigned, emission factors developed for each group of devices will be distinctive and will have low variability. These emission factors can be used to accurately assess emissions from similar devices. The first step in the categorization process is to divide the sources into major groups based on their primary design characteristics. Primary design characteristics are those parameters which are known to impact emissions such as basic system and feed type. For this study, emission data from different major groups were not combined when calculating emission factors.

The second step in the grouping process is to identify if any sub groups are present within each major group. Sub group identification is based on an evaluation of secondary design and operating parameters. Before sub groups can be established, secondary design and operating parameters must be identified, detailed data listings must be prepared, and outliers must be identified and eliminated from the analysis if sampling problems occurred. In addition, guidelines and statistical tests should be established to determine if sub groups are needed and appropriate. Secondary design and operating parameters are discussed and listed in this section. Detailed data listings are described in Section 6.6. The outlier analysis is discussed in Section 6.7 and guidelines for establishing sub groups are presented in Section 6.8.

*Results.* Major groups have been identified for all devices as shown in Table 15. The first column of this table describes each major group. Horizontal lines are used in Table 15 to segregate the sources contained in each major group. For example, the "Asphalt Prod., Natural Gas" major group contains 5 tests.

Secondary parameters which were considered when developing sub groups are listed in the table. For the major group "Asphalt Prod., Natural Gas", the impact of system design and facility function as indicated by the SCC, test contractor, and APC system was investigated. NC indicates no comparison was made. For example, the only fuel type for the major group "Asphalt Prod., Natural Gas" is natural gas, therefore no comparison of fuel type was made. However, for the major group "Boiler, Fuel Oil" three classifications of fuel are present including No. 6 Fuel Oil, Residual Fuel, and Fuel Oil. The Residual fuel and fuel oil may be No. 6 Fuel Oil but the test reports did not provide sufficient information to determine the specific fuel type.

It should also be noted that the oxygen level was examined for all combustion sources. Potential divisions based on an analysis of the data have been listed in Table 15. For the gas fired internal combustion engines, lean refers to oxygen levels greater than 2%. Due to the limited operating data present in the reports, the oxygen level compared in all cases was the stack oxygen level. If a source has significant air dilution after the combustion chamber, the stack oxygen will not reflect the true combustion environment.

For most sources due to the uncertainty and incompleteness of the capacity data, the stack flow rate was used to examine the impact of source size on emissions. The stack flow is impacted by load and air leakage but it still provides an order of magnitude estimate of source size. The internal combustion engines do have good capacity information, therefore the actual horse power rating was compared. Based on an initial assessment of the data, it was found that gas fired internal combustion engines with capacities less than 650 have different emissions than sources with capacities greater than 650. The significance of the difference is discussed in section 6.8.

## 6.6 Detailed Data Listings.

*Background.* To investigate the impact of secondary design and operating parameters and evaluate outliers, lists of emission factors, design and operating parameters and data quality parameters must be compiled. These lists are used to identify trends and as inputs to the statistical evaluation procedures.

*Results.* The comparison parameters listed in Table 15 and normalized emissions data were compiled into 17 tables, one for each device type. Each of these tables was sorted by major group, category, substance, and normalized emissions. The number and type of design and operating parameters listed depended on the device type. For example, SCC, capacity, condition, APC system, manufacturer, stack oxygen and stack flow were listed for asphalt blowing. Fuel type, SCC, strokes per cycle, capacity, condition, APC system, fuel region, manufacturer, stack oxygen, and stack flow were listed for internal combustion engines. Because the detailed data listings contain confidential information they have not been provided in this report.

## 6.7 Outlier Analysis.

*Background.* Before establishing sub groups outliers must be identified and evaluated. If an outlier results from a calculation or data entry error it can be corrected. Outliers resulting from sampling and analysis problems may be eliminated from data analysis activities. There are many approaches for identifying and handling outliers. For this study, the outlier analysis was conducted in two steps as described below.

- i.) Conduct an outlier analysis per substance per test and per substance per major group. The Dixon test was used to identify outliers per substance per test and per substance per major group. To use the Dixon test, a group of data is selected and sorted from lowest to highest emissions. Then the high and low points are examined statistically in relation to the other points in the data set. The test will identify if the high and low points are outliers at a prescribed level of confidence. For this study the confidence level was 95%. It should be noted that when applying the Dixon test to samples with three points many outliers are identified where two of the points in the data set have approximately equal values and third point is slightly higher. This commonly occurs when two points are not detected and the third point is detected. For this analysis, if the other two points in a data set had similar values and the outlier was within 1/2 order of magnitude of their value, no other checks or action was taken. These values were accepted as being within the expected precision of the test method.
- ii.) Evaluate outlier points identified in Step i to determine if sampling problems, calculation errors, and process upsets occurred. Outliers with calculation errors were corrected and outliers with sampling problems were assigned a method rating of F for unacceptable. Emissions with method ratings of F were not used to develop emission factors. Outliers were not eliminated unless a sampling or process problem occurred. A major component of the outlier evaluation are problems found during the detailed validation of the test reports. These problems are indicated by the flags described in Attachment 3.

*Results.* Table 16 summarizes the results of the outlier analysis by device and substance. Each data point in the table is an outlier. An "x" in the calculation, process or method column indicates that no problems of that type could be found in the test report or database. A "0" indicates that a problem was located and some action was taken. The problem and action are

described in the comment column. Approximately 40 outliers were identified in the analysis by device and substance. These outliers were assigned a F method rating and excluded from the emission factor calculations.

The results of the outlier analysis by major group and substance are given in Table 17. Each data point in the table is an outlier. Many of the outliers in this analysis were due to higher detection limits on source tests performed on one device versus tests performed on the other device(s) in the major group. These points were left in the database as valid test points. Approximately 30 outliers were identified in the analysis by major group and substance. These outliers were assigned a F method rating and excluded from the emission factor calculations.

## 6.8 Sub Group Evaluation.

*Background.* Sub groups may be developed for major groups with two or more sources. Major groups are discussed and identified in Section 6.5. As the number of sources increases the potential for sub group development also increases. Sub groups are developed when a secondary design or operating parameter is identified which impacts emissions. Engineering judgement and statistical analysis can be used to determine if the secondary parameters have a significant impact on emissions. If a secondary parameter does impact emissions, sub groups are established resulting in lower emission variability than present across the major group.

If the statistical analysis contradicts commonly accepted knowledge about emission behavior, sub groups should not be developed. For example, the APC system comparison for natural gas fired asphalt production devices indicated wet scrubbers have significantly lower chromium emissions and lower emissions of most other metals than fabric filters. This result was not expected since fabric filters control particulate matter better than wet scrubbers. The control of most metals correlates with particulate matter control. It is likely that another parameter such as the concentration of metals in the feed or differences in system configuration is responsible for the observed difference and not the APC system. Since additional investigation of the test results did not explain the differences and the APC system was not responsible, no sub groups were developed.

In cases where a secondary parameter impacts one substance but not another, the data for both substances could be segregated into different sub groups. Another approach would be to segregate the data for the substance which was impacted by the parameter into different sub groups and combine the data for the substance which was not impacted. This approach can generate a large number of sub groups with high variability. To reduce the number of sub groups and the variability of emissions data in each sub group, sub groups were identified in this project using the following two step process.

- i.) Identify which secondary parameters (comparison parameters) identified in Table 15 impact the emissions data by reviewing data listings and using the t-Test. The t-Test uses the t distribution to determine if two samples are from the same population when the variances are unknown but equal. The test is applicable to samples containing less than 30 data points. A sample is a group of data with a distinct value or range of values of the secondary parameter considered. If the t-Test indicates that two samples are not from the same population, the secondary parameter which the samples were grouped by has a significant impact on emissions. It should be noted that the t-Test was only be used to support the development of sub groups. In no case was the t-Test be used to blindly develop sub groups. Before developing sub groups the results of the t-Test were examined to ensure they were reasonable based on engineering judgement.

- ii.) Segregate tests in each major group into sub groups based on the those secondary parameters identified in step i which impact the emissions data. Results from one device were not split into different sub groups. This approach is appropriate when a substance is impacted by the secondary parameter and when it is not impacted.

It should be noted that when a secondary parameter was found to have a significant impact on emissions and a source in the major group was missing information on the parameter, the source was eliminated from the emission factor development process. For example, it was found that strokes per cycle, 2 or 4, is a key parameter for reciprocating internal combustion engines (ICE). Four natural gas reciprocating ICEs test did not specify the strokes per cycle so they were eliminated. A sub group for sources with unknown strokes per cycle was not developed because the emission factors could not be applied to any source.

*Results.* The impact of the secondary parameters identified in Table 15 is quantified statistically in Attachment 6. Attachment 6 includes a series of similar tables containing the results of the t-Test evaluation of each comparison listed in Table 15. The tables are listed below.

- Table A6-1a. Major group comparison.
- Table A6-2a. Fuel/Material type comparison.
- Table A6-3a. Source Classification Code type comparison.
- Table A6-4a. Air Pollution control system comparison.
- Table A6-5a. Contractor comparison.
- Table A6-6a. Fuel region comparison.
- Table A6-7a. Metal furnace type comparison.
- Table A6-8a. Surface coating application comparison.
- Table A6-9a. Internal combustion engine oxygen comparison.
- Table A6-10a. Internal combustion engine capacity comparison.
- Table A6-11a. Internal combustion engine strokes per cycle comparison.
- Table A6-12a. Source Classification Code type comparison: Asphalt Production.
- Table A6-13a. Air Pollution control system comparison: Asphalt Production.

Each of these tables includes a description of the data sets being compared, number of points, average, standard deviation, and detection limit ratio (Detect Ratio). The detect ratio is the ratio of the sum of detected values to the sum of detected and non-detected values. A detect ratio of one indicates all of the data was detected. A detect ratio of zero indicates all of the data was not detected. If the difference between the data sets is significant a "Yes" is provided in the last column of the table and data set with the higher average is shaded. It should be noted that if an average is significantly higher but none of the data was detected, no shading is provided. If the lower average includes all non-detect data and higher average includes detected data, then the higher average is shaded. If the sample sizes are too small for statistical comparison, an "NA" is given in the last column.

The Table A6-1a in Attachment 6 is included for informational purposes only. This table compares similar major groups identified in Table 15. For example, emissions from asphalt production facilities fired on natural gas, diesel, and oil are compared. Sub group development is not necessary for the following sources for the reasons given.

### No Sub Group Development Possible

<u>Major Group</u>	<u>Reason</u>
*Asphalt Blowing - Blow Cycle	Single Source
*Asphalt Blowing - No Blow Cycle	Single Source
*Boiler - Landfill Gas	Single Source
*Boiler - Natural Gas	No Difference Design/Operation
*Boiler - Wood	Single Source
*Cement Kiln - Coal	No Difference Design/Operation
*Cement Kiln - Coal/Coke	Single Source
*Coating - Yellow PE	Single Source
*Coke Calcining	Single Source
*Drum Burning Furnace	Single Source
*Fluidized Bed Combustion - Coke	No Difference Design/Operation
*Furnace - Alloy Stock	Single Source
*Furnace - Brass/Bronze	Single Source
*Heater - Natural Gas	Single Source
*Heater - Natural/Refinery Gas	Single Source
*Heater - Oil	Single Source
*Internal Combustion Engine - Landfill Gas	No Difference Design/Operation
*Polystyrene Manufacture - Devolatizer	Single Source
*Polystyrene Manufacture - Extruder	Single Source
*Polystyrene Manufacture - Mix Tank	Single Source
*Polystyrene Manufacture - Reactor	No Difference Design/Operation
*Polystyrene Manufacture - Storage Silo	No Difference Design/Operation
*Preheater Kiln - Coal	Single Source
*Steam Generator - Natural Gas	Single Source
*Steam Generator - Natural Gas/CVR	No Difference Design/Operation
*Turbine - Field Gas	Single Source
*Turbine - Landfill Gas	Single Source

For the remaining major groups, sub group development is possible. Each section below provides a brief description of the sub group analysis for the remaining major groups. A complete list of final sub groups is provided in Table 18. Sub groups are compared in Table 19.

#### 6.8.1 Asphalt Production - Diesel

Number of Tests - 4

Rejected Tests - 1 (Contractor V)

Significant Parameters - SCC (Rotary or Drum Dryer)  
- APC System (WS or FF)

Sub Groups - 3

Comments - The comparison of contractors indicated that emissions quantified in contractor V (see Table 9) tests are in general higher and in many cases significantly higher than the other contractors. Many of the contractor V data points are not detected and the detection limits are much higher than the other contractors. Because of the uncertainty of the contractor V data, it was eliminated from the emission factor development process. Statistical comparisons of emissions information without contractor V tests are provided in Tables A6-12a and A6-13a. These tables show that wet scrubber systems have higher emissions than fabric filters. In addition, Table A6-12a shows that rotary dryers (30500211) have higher emissions than drum dryers (30500205).

#### 6.8.2 Asphalt Production - Natural Gas

Number of Tests - 5  
Rejected Tests - 2 (Contractor V)  
Significant Parameters - None  
Sub Groups - 1

Comments - The comparison of contractors indicated that emissions quantified in contractor V (see Table 9) tests are in general higher and in many cases significantly higher than the other contractors. Many of the contractor V data points are not detected and the detection limits are much higher than the other contractors. Because of the uncertainty of the contractor V data, it was eliminated from the emission factor development process. Statistical comparisons of emissions information without contractor V tests are provided in Tables A6-12a and A6-13a. These tables show that wet scrubber systems have lower emissions than fabric filters. This result is not expected and may indicate another undefined parameter is causing the difference. No SCC comparison is possible since all sources are rotary dryers (30500211).

#### 6.8.3 Asphalt Production - Oil

Number of Tests - 2  
Rejected Tests - 1 (Contractor V tests)  
Significant Parameters - None  
Sub Groups - 1

Comments - The comparison of contractors indicated that emissions quantified in contractor V tests are in general higher and in many cases significantly higher than the other contractors. Many of the contractor V data points are not detected and the detection limits are much higher than the other contractors. Because of the uncertainty of the contractor V data, it was eliminated from the emission factor development process. With the elimination of the contractor V tests only a single test remains.

#### 6.8.4 Boiler - Distillate

Number of Tests - 7  
Rejected Tests - 0  
Significant Parameters - None  
Sub Groups - 1

Comments - Most of the sources in this major group are commercial/institutional. Only one source is industrial. Overall the emissions are comparable between the source types. An examination of stack oxygen and source size as given by stack flow rates indicated no significant trends.

#### 6.8.5 Boiler - Fuel Oil

Number of Tests - 12  
Rejected Tests - 1 (Fuel type not specified)  
Significant Parameters - SCC (Electric Generation or Industrial)  
Sub Groups - 2

Comments - The sources are split evenly between electric generation and industrial. One of

the sources has a fabric filter and the rest are uncontrolled. The source with a fabric filter has the highest emissions. In addition, most of the data for this source are not detected and the specific fuel type is not identified. For these reasons, device 102 was eliminated from the emission factor development process. Examination of the data listing and SCC comparison indicates that the electric generation sources have lower emissions than the industrial type sources. This may indicate a relation between source size and emissions since the electric generation sources are larger than the industrial sources. The source classified as residual fuel is included with the No. 6 Fuel Oil sources since its emissions do not appear to be significantly different.

#### 6.8.6 Coating - Green Polyurethane

Number of Tests - 5  
Rejected Tests - 0  
Significant Parameters - APC System (BF, PA, WC or WT)  
Sub Groups - 4

Comments - Limited source test data are available in this major group for each secondary parameter investigated. The baffle filter has the highest emissions and the water curtain has the lowest. Only one type of spray method was used so no comparison of spray method is possible.

#### 6.8.7 Coating - Green Primer

Number of Tests - 8  
Rejected Tests - 0  
Significant Parameters - APC System (BF, PA, WC, WSN, or WT)  
- Spray Method (HVLP Spray Guns or Conventional Spray)  
Sub Groups - 6

Comments - Limited source test data are available in this major group for each secondary parameter investigated. The statistical analysis indicated that conventional sprayers have higher emissions than HVLP sprayers. The baffle filter has the highest emissions and the water trough has the lowest.

#### 6.8.8 Coating - Powder

Number of Tests - 7  
Rejected Tests - 0  
Significant Parameters - Powder Type (Distinguished by Chromium Content)  
- APC system (None or AF)  
Sub Groups - 7

Comments - No statistical comparison can be made because only one run was conducted per test condition. However, the data clearly shows a dependence of chromium emissions on the percent of chromium in the feed. The higher the chromium content of the feed the higher the emissions. It also appears that controlled sources have lower emissions.

#### 6.8.9 Fluidized Bed Combustion - Biomass

Number of Tests - 2

Rejected Tests - 0

Significant Parameters - Waste Type (Wood Waste or Agricultural Waste)

Sub Groups - 2

Comments - The source fired on agricultural waste has higher and in many cases significantly higher emissions than the source fired on wood waste from a saw mill. The source fired on agricultural waste has a fabric filter while the other source has an electrostatic precipitator. Fabric filters generally have lower emissions than electrostatic precipitators, however, the difference in waste type may have impacted emissions and control efficiency. It should also be noted that the source fired on agricultural waste is larger and has higher stack oxygen.

#### 6.8.10 Fluidized Bed Combustion - Coal

Number of Tests - 6

Rejected Tests - 0

Significant Parameters - None

Sub Groups - 1

Comments - All sources in this major group have similar types of control systems: limestone injection, ammonia injection, cyclone, and fabric filter. Device 431 also has an electrostatic precipitator. The additional control device for device 431 does not have a significant impact on emissions. No consistent impact of size was found and all sources have similar stack oxygen levels.

#### 6.8.11 Furnace - Aluminum

Number of Tests - 7

Rejected Tests - 2 (Furnace type not specified)

Significant Parameters - Furnace Type (Dross, Melting Pot, Reverberatory or Electric Induction)

- APC System (None or FF)

Sub Groups - 4

Comments - The comparison of furnace type indicated the dross furnace has significantly higher emissions than the reverberatory furnace and melting pot. The reverberatory furnace has higher emissions than the melting pot but the difference is not as significant due to the high variability in the reverberatory furnace data. The high variability in the reverberatory furnace data is partly due to differences in the control technologies used. The reverberatory furnace with a fabric filter has lower emission than the reverberatory furnace with no control devices. For devices 154 and 155 the report did not document the type of furnace. Since the furnace type is critical, these two sources were eliminated from the emission factor development process.

#### 6.8.12 Furnace - Glass

Number of Tests - 4  
Rejected Tests - 0  
Significant Parameters - APC System (None or FF)  
Sub Groups - 2

Comments - The comparison of APC system indicated that glass furnaces with fabric filters have lower emissions than those with no control equipment. However, the difference is not significant due to the high variability of emissions from systems without control devices. This variability in emissions may result from differences in feed composition. Since the feed was not characterized, additional sub groups cannot be developed.

#### 6.8.13 Internal Combustion Engine - Diesel

Number of Tests - 8  
Rejected Tests - 0  
Significant Parameters - SCC (Electric Generation, Industrial or Commercial/Institutional)  
- Oxygen Level (<13% or >13%)  
Sub Groups - 4

Comments - It was found that sources with a stack oxygen content greater than 13 have higher emissions than sources with oxygen < 13%. To determine if emissions from the high and low oxygen groups are significantly different, these sub groups were compared. The results clearly show that high oxygen sources have significantly higher emissions. The comparison of sources by industry (SCC) indicated that emissions from commercial engines are lowest and electric generation are highest. Industrial engines have emissions between commercial and electric generation sources.

#### 6.8.14 Internal Combustion Engine - Field Gas

Number of Tests - 6  
Rejected Tests - 0  
Significant Parameters - Strokes (2 or 4)  
- Oxygen (Rich or Lean)  
- Capacity (>650 Hp or <650 Hp)  
Sub Groups - 4

Comments - Due to the larger sample size of the field gas fired internal combustion engine major group, several secondary parameters were considered including strokes per cycle, rich or lean combustion, and source size. In general, the 2 stroke engines have higher emissions than 4 stroke engines as expected. All of the 2 stroke engines also have high oxygen levels. For the 4 stroke engines, the data indicated that sources with oxygen less than 2% have higher emissions than sources with oxygen greater than 2%. Sources with oxygen greater than 2% are characterized as lean burning and sources with oxygen less than 2% are characterized as rich burning. An examination of capacity indicated that sources with < 650 Hp have higher emissions than sources with > 650 Hp. When strokes per cycle, rich or lean combustion, and source size are used to develop sub groups, the following sub groups are obtained as shown in Table 18.

- 1 - lean/4s/<650 Hp
- 2 - lean/2s/<650 Hp
- 4 - rich/4s/<650 Hp
- 5 - lean/2s/>650 Hp

Table 19 shows that, in general, sub group 1 has the lowest emissions and sub group 2 emissions has the highest emissions as expected.

#### 6.8.15 Internal Combustion Engine - Natural Gas

- Number of Tests - 22
- Rejected Tests - 4 (Strokes per cycle not specified)
- Significant Parameters - Strokes (2 or 4)
  - Oxygen (Rich or Lean)
  - Capacity (>650 Hp or <650 Hp)
- Sub Groups - 4

Comments - Due to the larger sample size of the natural gas fired internal combustion engine major group, several secondary parameters were considered including strokes per cycle, rich or lean combustion, and source size. A comprehensive comparison of 2 and 4 stroke engines is not possible since 2 stroke data are only available for formaldehyde. However, since the analysis for field gas engines and theory indicates the engine configuration is important, the engines were divided into 2 and 4 stroke sub groups. The number of strokes per cycle could not be verified for four devices (156, 168, 169, and 170). These devices were eliminated from the analysis and will not be included in the emission factor development procedure. Only source 156 has a significant quantity of data. For the 4 stroke engines, the data indicated that sources with oxygen less than 2% have higher emissions than sources with oxygen greater than 2%. Sources with oxygen greater than 2% are characterized as lean burning and sources with oxygen less than 2% are characterized as rich burning. An examination of capacity indicated that sources with < 650 Hp have higher emissions than sources with > 650 Hp. When strokes per cycle, rich or lean combustion, and source size are used to develop sub groups, the following sub groups are obtained as shown in Table 18.

- 1 - lean/4s/<650 Hp
- 2 - rich/4s/<650 Hp
- 3 - lean/4s/>650 Hp
- 4 - lean/2s/>650 Hp

Table 19 shows that, in general, sub group 3 has the lowest emissions and sub group 2 emissions has the highest emissions for PAH and BTX as expected. For the aldehydes, sub group 1 has the highest emissions and sub group 2, 3, and 4 have comparable emissions.

#### 6.8.16 Plating - Hard

- Number of Tests - 8
- Rejected Tests - 0
- Significant Parameters - APC System (Wet scrubber or Dry scrubber)
- Sub Groups - 2

Comments - The comparison of APC system indicated that emissions from all of the

control systems except the system which includes a filter are similar. The system with a demister, wet scrubber, and filter has an order of magnitude lower emissions. The other control systems include wet scrubbers without filters.

6.8.17 Plating - Anodizing

Number of Tests - 3  
Rejected Tests - 0  
Significant Parameters - APC System (Wet scrubber or Dry scrubber)  
Sub Groups - 2

Comments - The system with a demister, wet scrubber, and filter has an order of magnitude lower emissions. The other control system includes a wet scrubber without a filter.

6.8.18 Steam Generator - Crude Oil

Number of Tests - 3  
Rejected Tests - 0  
Significant Parameters - None  
Sub Groups - 1

Comments - The comparison of devices without control to devices with SO<sub>2</sub> control indicated no significant difference for most substances.

6.8.19 Turbine - Distillate

Number of Tests - 5  
Rejected Tests - 0  
Significant Parameters - SCC (Electric Generation or Industrial)  
Sub Groups - 2

Comments - The electricity generation sources have higher emissions than the industrial sources. One of the sources specified that diesel fuel was burned while the other four sources indicated that No.2 distillate was burned. The statistical analysis indicated no significant difference in emissions between the No. 2 sources and the diesel source. The diesel source probably burns No 2 distillate.

6.8.20 Turbine - Natural Gas

Number of Tests - 9  
Rejected Tests - 0  
Significant Parameters - SCC (Cogeneration or Noncogeneration)  
Sub Groups - 2

Comments - The natural gas turbines are very similar in design and operation. The noncogeneration turbine has higher formaldehyde emissions than the cogeneration turbines.

6.9 Sub Group Emission Factor Calculation.

*Background.* Once sub groups have been established, run specific emission factors must be averaged for each substance in each sub group. For this project, the run specific emission

factors were averaged arithmetically. It should be noted that most tests included three runs. Therefore, if a sub group included two tests the corresponding six run emission factors would be averaged. In addition to the arithmetic average, several statistics were calculated including the uncertainty, relative standard deviation, number of sources, detection ratio, and median, maximum and minimum emission factors. The detect ratio is defined as the ratio of the sum of detected values to the sum of detected and non-detected values. A detect ratio of one indicates all of the data was detected. A detect ratio of zero indicates all of the data was not detected. The relative standard deviation and uncertainty are indicators of the precision and accuracy of the emission factors. The relative standard deviation is calculated as 100 times the standard deviation divided by the arithmetic average. The uncertainty is calculated as 100 times the 95% confidence interval divided by the arithmetic average. Ideally the relative standard deviation and uncertainty should be zero.

*Results.* Table 24 lists emission factors and corresponding sample statistics. The relative standard deviation and uncertainty information in Table 24 is summarized in Table 20 for each substance. The relative standard deviation ranges from 0 to 162% (47% average) and the uncertainty ranges from 0 to 183% (44% average). To reduce these ranges would require additional sub groups. However, no additional sub groups were found. It should also be noted that creating additional sub groups reduces the size of the sample which reduces the representativeness of the emission factors.

It should be noted that not all emission factors listed in Table 24 are unique. One set of emission factors has been developed for each major and sub group as described above. Many of the groups contain results from several different source tests conducted on devices with different characteristics. These devices do not have identical designs, however, the statistical and engineering analyses indicated that the differences in each device did not impact emissions significantly. Therefore, the emission factors from all of the devices within each group were averaged together for each substance. This averaging resulted in a single emission factor per substance per group. When developing the Graphical User Interface (GUI) and Table 24, the average results were applied to each distinct design from the set of sources that were averaged together. This was done to allow users to easily find data matching their specific device. This procedure also resulted in duplicate emission factors in the GUI and Table 24. These duplicate emission factors are illustrated in Table 18 as the major/sub groups which apply to more than one line. For example, each emission factor from the group with a major group identification of "Boiler,Fuel Oil" and a sub group identification of "2" is repeated four times in the GUI and Table 24.

#### 6.10 Sub Group Method and Population Rating.

*Background.* Once the emission factors have been calculated it is important to assign quality ratings to each emission factor. Several ratings can be assigned to each emission factor including method and population ratings. The method rating describes the test method that was used and the level of supporting document provided. The method rating used for this project is described in Section 6.3. It should be noted that the method rating is assigned on a run basis. When the runs are averaged together to calculate emission factors for each substance in each sub group, the method rating must also be averaged. For example, if an average emission factor was derived from one A rated run and one C rated run, B would be the resulting method rating.

The second rating is used to describe how well emissions can be estimated from the entire pool of sources. To provide an accurate estimate of emissions from the source pool, an emission factor should be derived from many randomly chosen facilities in the industry population. For this study, one of the following population ratings was assigned to each emission factor.

- 1- Source test data taken from many randomly chosen facilities in the industry population (5 or more sources).
- 2- Source test data taken from a reasonable number of facilities (3 to 4 sources).
- 3- Source test data taken from a small number of facilities, and there may be reason to suspect that the facilities do not represent a random sample of the industry (< 3 sources).

Population ratings were assigned based on a recommendation from the California Air Resources Board. This recommendation was to assign the population rating based on the number of sources as described above.

Ideally, the population rating should not only consider the number of sources tested but also the number of sources in the source pool. Some effort was given to try and develop a population rating based on the overall population of sources in California. Two databases were considered including the Southern Coast Air Pollution Control District (SCAQMD) permit database and the CARB Air Toxic Emission Data System (ATEDS). The permit database was used because ATEDS does not contain information on SCAQMD sources. Table 21 compares the total population statistics for each major and sub group to the number of tests used to develop each emission factor. The population ratings of 1 to 3 are described above. Table 21 shows that for most source groups only a small number of sources out of the total population have been tested indicating the tests may not be representative of the source population.

*Results.* Average method ratings are provided in Table 24 for each emission factor. The method rating is the first character of the CARB rating. The population ratings are provided in Table 24. The second character of the CARB rating is the population rating.

#### 6.11 CARB Overall Quality Rating.

*Background.* Several indicators of data quality have been assigned to each emission factor. These indicators include the method rating, population rating, and indicators of variability such as the relative standard deviation and uncertainty. To summarize all of these indicators, a single CARB overall rating was developed. The CARB overall rating has the format “xy-vn” where “x” is the method rating, “y” is the population rating, and “n” is the order of magnitude difference between the minimum and maximum emission factors for each substance in each sub group. It should be noted that if the emission factor was developed from a single run, n was set to “-”.

*Results.* CARB overall ratings are provided in the “ARB Rating” column of Table 24 for each emission factor. The number of emission factors with each CARB overall rating are provided within parentheses in Table 22. It should be noted that the EPA methods are not considered inferior. However, the Hot Spots Program mandated that an EPA method could be used only if there was no corresponding CARB test method or if the source asked for an equivalency determination. CARB and EPA test methods are different in many cases and can lead to different results. CARB test methods were rated higher than the EPA’s to provide consistent test result comparisons.

#### 6.12 EPA Overall Quality Rating.

*Background.* Similar to the CARB overall quality rating, the EPA has developed an overall quality rating used to designate the quality of each emission factor. This rating termed “factor

quality rating” by the EPA considers the type of method used, level of supporting documentation available, and how well the population is represented. The EPA assigns factor quality ratings of A, B, C, D, and E as described below.

#### EPA Factor Quality Rating or Overall Quality Rating

- A Excellent. Factors developed only from A-rated source test data taken from many randomly chosen facilities in the industry population. The source category is specific enough to minimize variability within the source population.
- B Above average. Developed only from A-rated test data from a reasonable number of facilities. Although no specific bias is evident, it is not clear if the facilities tested represent a random sample of the industry. As with the A rating, the source is specific enough to minimize variability within the source population.
- C Average. Developed only from A- and B-rated test data from a reasonable number of facilities. Although no specific bias is evident, it is not clear if the facilities tested represent a random sample of the industry. As with the A rating, the source category is specific enough to minimize variability within the source population.
- D Below average. Developed from A- and B-rated test data from a small number of facilities, and there may be reason to suspect that these facilities do not represent a random sample of the industry. There also may be evidence of variability within the source population.
- E Poor. The emission factor was developed from C- and D-rated test data, and there may be reason to suspect that the facilities tested do not represent a random sample of the industry. There also may be evidence of variability within the source category population.

EPA A through D test data/method ratings used to assign EPA factor quality ratings are listed and described below

#### EPA Test Data Rating or Method Rating

- A When tests are performed by a sound methodology and are reported in enough detail for adequate validation.
- B When tests are performed by a generally sound methodology but lack enough detail for adequate validation.
- C When tests are based on an untested or new methodology or are lacking a significant amount of background data.
- D When tests are based on a generally unacceptable method but the method may provide an order-of-magnitude value for the source.

*Results.* To allow comparison of the quality of CARB and EPA emission factors on a similar basis, EPA overall quality ratings or factor quality ratings were assigned to each CARB emission factor using the criteria provided in Table 23. The number of CARB emission factors with each EPA overall rating are provided within parentheses in Table 23. The EPA overall ratings

shown in Table 23 were assigned for this project and are not official EPA ratings.

The definitions of the CARB and EPA method ratings provided in Tables 22 and 23 are different. The CARB method rating system was developed to distinguish between tests conducted using EPA and CARB methods as well as tests which provide and do not provide sufficient documentation. The EPA method rating system does not identify the local, state or federal government agency which developed the test method. The CARB system does not denote tests based on untested/new methodologies or tests based on generally unacceptable order of magnitude methods (see EPA method ratings C and D). A CARB method rating for tests based on generally unacceptable order of magnitude methods is not needed, because these tests were not included in the CARB database.

To assign EPA overall quality ratings as described in the background section above, various terms such as many randomly chosen facilities, reasonable number of facilities, and small number of facilities had to be defined. In addition since EPA method ratings must be assigned to assign EPA overall quality ratings, EPA method rating terms such as sound methodology, adequate validation, and untested/new methodology had to be defined. Each EPA term along with the CARB definition used for this project is provided below.

<u>EPA Term</u>	<u>CARB Definition</u>
1. Many Randomly \Chosen Facilities	5 or More Sources
2. Reasonable Number of Facilities	3 to 4 Sources
3. Small Number of Facilities	<3 Sources
4. Sound Methodology	Current EPA or CARB Method
5. Adequate Validation	Adequate Validation if Specified Number of Primary Validation Parameters could be Checked (see Section 6.3)
6. Untested/New Methodology	Old versions of CARB or EPA test methods.

The CARB definitions were applied to assign EPA method and overall quality ratings.

TABLE 1. DATA COLLECTION SUMMARY.

DISTRICT	TESTS		COMMENT
	Available	Collected	
Bay Area	92 (a)	92 (a)	Completed
Colusa	1	1	Completed
Glenn	1	1	Completed
Great Basin	10	10	Completed
Imperial	4	4	Completed
Kern	12	12	Completed
Lassen	1	1	Completed
Mendocino	5	5	Completed
Mojave	29	29	Completed
Monterey Bay	20	20	Completed
North Coast	6	6	Completed
Placer	5	5	Completed
Sacramento	14	14	Completed
San Diego	59	59	Completed
San Joaquin	127	127	Completed
Santa Barbara	149 (c)	39	Completed
South Coast	322	322	Completed
Ventura	236 (b)	50	Completed
Yolo Solano	2	2	Completed
Calaveras	0	0	Completed. No tests
Feather River	0	0	Completed. No tests
Mariposa	0	0	Completed. No tests
Modoc	0	0	Completed. No tests
Northern Sierra	0	0	Completed. No tests
San Luis Obispo	0	0	Completed. No tests
Butte	1	0	Not Collected
El Dorado	1 (d)	0	Not Collected
Shasta	7	0	Not Collected
Tuolumne	4 (d)	0	Not Collected
Northern Sonoma	21 (d)	0	No widely applicable source tests; not collected.
Lake	7 (d)	0	No widely applicable source tests; not collected.

- a. 49 of these are one page summary reports
- b. 179 of these tests were conducted using lab analysis of composition and will not be collected.
- c. 102 of these tests were conducted using lab analysis of composition. and will not be collected.
- d. Estimated using 1/2 ATEDs source test number.

TABLE 2a. REPORT INFORMATION EXTRACTED FOR SCREENING,

- 1.) Document ID: Assigned at entry. The number must be in the 2000 series and must be unique.
- 2.) Review Info: Reviewer initials and review date.
- 3.) Submitted to: Name of company or association the report was submitted to.
- 4.) Confidential: Indicates if the report contains confidential information.
- 5.) Contractor: Name of the company that conducted the test(s).
- 6.) Device  
Description: Indicates if the report describes the device(s) being tested.
- 7.) Method  
Description: Indicates if report describes the source test methods used.
- 8.) Sample Data: Indicates if the report provides run sheets containing train parameters such as sample volume, probe or stack temperature, pitot tube pressures, flow rates, etc. This information is usually contained in an appendix.
- 9.) Lab Data: Indicates if the report includes the lab data. Lab data includes the raw analytical numbers and tracking sheets and is usually contained in an appendix. The unit of the lab data is usually mass per sample or ppmv.
- 10.) QA/QC  
Description: Indicates if the report includes a separate QA/QC discussion section.
- 11.) Calibration  
Data: Indicates if the report includes Calibration data. Calibration data should include pitot tube cals, dry gas meter cals, and thermocouple cals.
- 12.) Location  
Data: Indicates if the report includes the stack diameter and number of sample points. The stack diameter and sample points may be given in a figure or on the sampling run sheets.
- 13.) Blank Data: Indicates if the report includes blank data. Blank data should be located in one of the following areas: results tables, raw data, or lab data.
- 14.) Report Date: Date report was issued.

TABLE 2b. DEVICE INFORMATION EXTRACTED FOR SCREENING.

- 1.) Report ID: The document ID plus alphabet character. The first device or group of similar devices receives an "A" and the second a "B" and so on.
- 2.) Device Category: This is the ARB device category.
- 3.) #of Tests: Number of tests for each report ID. Since most facilities only test one device of each type, this will usually be 1.
- 4.) Company: The name of the company where the test was conducted. The company name given on the title page is not always correct. Sometimes the name on the title page is an association which sponsored the test. The facility description in the report usually gives the name of the company where the test was conducted.
- 5.) City: The city where the test was conducted. Use the same cautions as described above for the company.
- 7.) Device: The device/process of the source being tested. For example, if the test is on a refinery gas fired process heater with an SCR and Baghouse, the device would be process heater.
- 8.) Material: The material being processed which is primarily responsible for the emissions. For example, if the test is on a refinery gas fired process heater with an SCR and Baghouse, the material would be refinery gas. In an aluminum shredding facility, the material would be aluminum.
- 9.) Phase: The phase of the material being processed. For example, if the test is on a refinery gas fired process heater with an SCR and Baghouse, the phase would be gas.
- 10.) Control Devices: Indicates if a control device(s) used to reduce emissions of air toxics.
- 11.) EF Unit: Indicates if an emission factor is provided.
- 12.) Process Rate: Indicates if process rates for the material in item 8 are provided. These process rates will be used to develop emission factors.
- 13.) Mass Rate: Indicates if pollutant mass rates at the stack were provided.

TABLE 2c. SUBSTANCE INFORMATION EXTRACTED FOR SCREENING

- 1.) Location: The location of the measurement, fuel or stack.
- 2.) Substances: Indicates if Metals, HCl, PAH, Dioxin, Formaldehyde, Benzene, Vinyl Chloride, PCBs, Halogenated Organics, Arsenic, Gas Vapors, H<sub>2</sub>S, or Hexavalent Chromium were quantified.
- 3.) Others: Indicates if other substances were quantified.

TABLE 3a. SCREENING SUMMARY BY SOURCE TYPE (Report Information).

DEVICE/PROCESS	MATERIAL	NUMBER OF TESTS	PERCENT OF TESTS IN EACH CATEGORY WITH:										Emission Factor (g)				
			Device Description n (e)	Method n (e)	Sample Data (e)	Lab Data (e)	QA/QC Description (e)	Calibration Data (e)	Location Data (e)	Blank Data (e)	Control Devices (f)						
REQUIRED SOURCE TESTING (a)																	
TEXTILE MFG.	COMBUSTION	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
BULK PLANT/TERMINAL	COMBUSTION	2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
COMBUSTION	AGRICULTURAL	2	50%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	50%	50%
PETROLEUM REFINERIES	NATURAL GAS (UTILITY)	2	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%
WASTE WATER TREATMENT	CO BOILER	2	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%
WASTE WATER TREATMENT	CHLORINATOR/DISCHARGE	2	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%
FIBERBOARD MFG.	SLUDGE INCINERATOR	3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
PETROLEUM REFINERIES	OIL COMBUSTION	3	67%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	33%	100%
TEXTILE MFG.	OTHER PROCESSES	3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
INCINERATOR	HAZARDOUS	4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
CEMENT MFG.	HEADWORKS	6	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	83%	100%
WASTE WATER TREATMENT	FUGITIVE DUST	6	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
AGRICULTURE-RELATED FACILITY	CRUDE OIL	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
COMBUSTION	WOOD	7	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	14%	86%	86%
INCINERATOR	MUNICIPAL	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
COMBUSTION	COAL	8	75%	88%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	75%	88%
COMBUSTION	COKE	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
PETROLEUM REFINERIES	DISTILLATE	8	25%	88%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	25%	88%
INCINERATOR	CATALYTIC CRACKERS	10	78%	70%	90%	80%	20%	20%	20%	20%	20%	20%	20%	20%	60%	90%	90%
COMBUSTION	BIOMEDICAL	18	78%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	6%	94%	94%
GLASS MFG.	RESIDUAL	18	33%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	33%	100%	100%
ASPHALT CONCRETE PROD		29	86%	86%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	14%	79%	79%
SMELTERS AND FOUNDRIES	DIESEL	45	78%	91%	82%	100%	64%	64%	64%	64%	64%	64%	64%	64%	11%	64%	64%
COMBUSTION	ALL	45	89%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	1%	98%	98%
NONREQUIRED SOURCE TESTING (b)																	
C/GENERATION	GAS	2	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	50%	0%
ASPHALT ROOFING	GAS	4	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	25%	100%
FLARE	GAS	4	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	75%	100%
THERMAL OXIDIZER	GAS	4	25%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	25%	100%
KILN	GAS	5	60%	80%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	40%	100%
AGGREGATE PROCESS	GAS	7	0%	100%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	0%	0%	86%
FURNACE	GAS	8	38%	88%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	38%	38%	88%
OVEN	GAS	9	78%	78%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	22%	78%	78%
RESIN PRODUCTION	GAS	9	11%	11%	100%	89%	89%	89%	89%	89%	89%	89%	89%	89%	11%	11%	100%
HEATER	GAS	11	91%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9%	91%	100%
STEAM GENERATOR	GAS	11	100%	100%	55%	64%	64%	64%	64%	64%	64%	64%	64%	64%	0%	36%	100%
FUGITIVES	VARIOUS	12	67%	100%	67%	83%	83%	83%	83%	83%	83%	83%	83%	83%	0%	33%	100%
AFTERBURNER	VARIOUS	14	57%	86%	93%	71%	71%	71%	71%	71%	71%	71%	71%	71%	29%	29%	86%
BATTERY PRODUCTION	VARIOUS	15	80%	87%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	7%	29%	87%
BOILER	GAS	17	88%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	12%	88%	100%
MISC METALS PROCESSES	GAS	29	90%	90%	100%	97%	62%	62%	62%	62%	62%	62%	62%	62%	8%	55%	59%
TURBINE	GAS	31	71%	81%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	27%	23%	84%
PLATING OPERATION	GAS	49	82%	90%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	5%	82%	59%
COATING OPERATION	GAS	56	63%	89%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	16%	57%	52%
INTERNAL COMBUSTION ENGINE	GAS	98	77%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	2%	77%	56%
NOT ENOUGH INFORMATION (c)		30	23%	93%	87%	100%	47%	47%	47%	47%	47%	47%	47%	47%	43%	24%	56%
MISC. NON-REQUIRED (d)		85	59%	91%	98%	80%	80%	80%	80%	80%	80%	80%	80%	80%	7%	40%	42%

(a) Source testing required by AB258R Appendix D

(b) Source testing not required by AB258R Appendix D

(c) Device/process is not described in enough detail to categorize.

(d) Includes over 50 device/process categories

(e) Described in Table 2a.

(f) Described in Table 2b.

(g) Emissions factors can be developed for a device if feed or production rate and emission rate is provided in the test report.

TABLE 3b. SCREENING SUMMARY BY SOURCE TYPE (Substance Information).

DEVICE/PROCESS	MATERIAL	NUMBER OF TESTS	PERCENT OF TESTS IN EACH CATEGORY WITH (e)										PERCENT OF TESTS IN EACH CATEGORY WITH (c)				
			Metals	HCl	PAH	Dioxin	Formaldehyde	Benzene	Chloride	Vinyl Chloride	PCBs	Halogenated Organics	Arsenic	Gas Vapors	Chromium (Hex)	Others	
REQUIRED SOURCE TESTING (a)																	
TEXTILE MFG.	COMBUSTION	1	0%	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
BULK PLANT/TERMINAL	AGRICULTURAL	2	0%	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
COMBUSTION	NATURAL GAS (UTILITY)	2	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PETROLEUM REFINERIES	CO BOILER	2	100%	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
WASTE WATER TREATMENT	CHLORINATOR DISCHARGE	2	100%	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
FIBERBOARD MFG.	SLUDGE INCINERATOR	2	100%	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PETROLEUM REFINERIES	OIL COMBUSTION	3	33%	0%	100%	33%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
TEXTILE MFG.	OTHER PROCESSES	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
INCINERATOR	HAZARDOUS	4	75%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CEMENT MFG.	HEADWORKS	6	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WASTE WATER TREATMENT	AGRICULTURE-RELATED FACILITY	7	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
COMBUSTION	FUGITIVE DUST	7	83%	14%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
COMBUSTION	CRUDE OIL	7	71%	14%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
INCINERATOR	WOOD	7	100%	71%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
COMBUSTION	MUNICIPAL	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
COMBUSTION	COAL	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
COMBUSTION	COKE	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PETROLEUM REFINERIES	DISTILLATE	8	100%	13%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
INCINERATOR	CATALYTIC CRACKERS	10	100%	13%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
COMBUSTION	BIOMEDICAL	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
GLASS MFG.	RESIDUAL	18	28%	6%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ASPHALTIC CONCRETE PROD	DIESEL	29	72%	0%	65%	0%	0%	62%	0%	0%	0%	0%	0%	0%	0%	0%	100%
COMBUSTION	ALL	45	11%	16%	67%	7%	20%	67%	7%	20%	7%	20%	7%	20%	7%	20%	100%
SMELTERS AND FOUNDRIES			96%	16%	16%	16%	20%	22%	27%	27%	27%	27%	27%	27%	27%	27%	100%
NONREQUIRED SOURCE TESTING (b)																	
COGENERATION	GAS	2	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ASPHALT ROOFING	GAS	4	0%	0%	25%	0%	0%	75%	0%	0%	0%	0%	0%	0%	0%	0%	100%
FLARE	GAS	4	25%	25%	50%	25%	25%	25%	50%	25%	25%	25%	25%	25%	25%	25%	100%
THERMAL OXIDIZER	GAS	4	25%	25%	50%	25%	25%	25%	50%	25%	25%	25%	25%	25%	25%	25%	100%
KILN	GAS	5	20%	0%	40%	0%	0%	50%	75%	0%	0%	0%	0%	0%	0%	0%	100%
AGGREGATE PROCESS	GAS	7	71%	0%	0%	0%	0%	14%	14%	0%	0%	0%	0%	0%	0%	0%	100%
FURNACE	GAS	8	75%	38%	38%	25%	25%	63%	50%	0%	0%	0%	0%	0%	0%	0%	100%
OVEN	GAS	9	11%	0%	22%	22%	22%	22%	11%	11%	11%	11%	11%	11%	11%	11%	100%
RESIN PRODUCTION	GAS	11	18%	0%	0%	0%	0%	89%	0%	0%	0%	0%	0%	0%	0%	0%	100%
HEATER	GAS	11	18%	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
STEAM GENERATOR	GAS	12	17%	0%	18%	0%	0%	64%	73%	0%	0%	0%	0%	0%	0%	0%	100%
FUGITIVES	VARIOUS	14	14%	7%	21%	7%	7%	43%	36%	7%	0%	0%	0%	0%	0%	0%	100%
AFTERBURNER	VARIOUS	15	87%	12%	0%	0%	0%	47%	59%	0%	0%	0%	0%	0%	0%	0%	100%
BATTERY PRODUCTION	GAS	17	24%	12%	71%	18%	18%	47%	59%	6%	6%	6%	6%	6%	6%	6%	100%
BOILER	GAS	29	21%	10%	0%	7%	7%	3%	3%	7%	0%	0%	0%	0%	0%	0%	100%
MISC METALS PROCESSES	GAS	31	13%	0%	39%	0%	0%	65%	55%	3%	0%	0%	0%	0%	0%	0%	100%
TURBINE	GAS	49	24%	8%	0%	0%	0%	5%	7%	0%	0%	0%	0%	0%	0%	0%	100%
PLATING OPERATION	GAS	56	21%	4%	4%	0%	0%	5%	7%	0%	0%	0%	0%	0%	0%	0%	100%
COATING OPERATION	GAS	98	2%	4%	20%	0%	0%	40%	31%	1%	0%	0%	0%	0%	0%	0%	100%
INTERNAL COMBUSTION ENGINE	GAS	30	23%	27%	23%	0%	0%	50%	50%	7%	0%	0%	0%	0%	0%	0%	100%
NOT ENOUGH INFORMATION (c)																	
MISC. NON-REQUIRED (d)		85	53%	7%	19%	1%	34%	34%	33%	0%	1%	1%	1%	1%	1%	1%	1%

(a) Source testing required by AB2588 Appendix D  
 (b) Device/process not required by AB2588 Appendix D  
 (c) Device/process is not described in enough detail to categorize.  
 (d) Includes over 50 device/process categories.  
 (e) Shaded areas are required AB2588 source tests.

TABLE 4. SOURCE RANKING SUMMARY (d).

Search Case	1 (b)	2	3	4 (b)	5	6	7 (c)
<b>Search Parameters</b>							
Required Test (a)?	Y	Y	Y	N	N	N	Y/N
Device Description Provided?	Y	Y	Y/N	Y	Y	Y/N	Y/N
Method Description Provided?	Y	Y	Y/N	Y	Y	Y/N	Y/N
Sample Data Provided?	Y	Y	Y/N	Y	Y	Y/N	Y/N
Laboratory Data Provided?	Y	Y	Y/N	Y	Y	Y/N	Y/N
QA/QC Data Provided?	Y	Y/N	Y/N	Y	Y/N	Y/N	Y/N
Calibration Data Provided?	Y	Y/N	Y/N	Y	Y/N	Y/N	Y/N
Location Data Provided?	Y	Y/N	Y/N	Y	Y/N	Y/N	Y/N
Blank Data Provided?	Y	Y	Y/N	Y	Y	Y/N	Y/N
Process Rates Provided?	Y	Y	Y	Y	Y	Y	N
<b>Tests Found</b>	<b>62</b>	<b>62</b>	<b>57</b>	<b>51</b>	<b>81</b>	<b>171</b>	<b>289</b>

(a) Required tests are those listed in AB2588 appendix D.

(b) All information needed to evaluate report provided.

(c) Emission factor cannot be developed.

(d) Table described in Section 3.3.

TABLE 5. SOUTH COAST AIR BASIN 1987 TOTAL ORGANIC GAS EMISSION INVENTORY\*

CATEGORY	DEVICE/PROCESS DESCRIPTION	TOTAL ORGANIC GAS EMISSIONS (TONS/YR)
ASPHALT	CUTBACK ASPHALT PAVING MATERIAL	0
BOILER	UTILITY BOILERS - GASEOUS FUELS	2.7
BOILER	UTILITY BOILERS - LIQUID FUELS	0.23
BOILER	INDUSTIAL BOILERS	0.68
CALCINING	PETROLEUM COKE CALCINING	0.01
CEMENT KILN	CEMENT KILNS	0.01
CHEMICAL MANU	CHEMICAL MANUFACTURING	2
COATING	AEROSPACE - SURFACE COATING	5.4
COATING	ARCHITECTURAL COATINGS - OIL BASED	57
COATING	ARCHITECTURAL COATINGS - SOLVENT BASED	11
COATING	ARCHITECTURAL COATINGS - WATER BASED	14
COATING	AUTO ASSEMBLY LINE - SURFACE COATING	4.1
COATING	AUTO REFINISHING - SURFACE COATING	41
COATING	CAN & COIL - SURFACE COATING	6.6
COATING	FABRIC - SURFACE COATING	6.7
COATING	METAL PARTS & PROD. - SURFACE COATING	54
COATING	OTHER INDUSTRIAL SURFACE COATING	44
COATING	PAPER - SURFACE COATING	5.2
COATING	SHIPS - SURFACE COATING	4.3
COATING	WOOD FURNITURE - SURFACE COATING	23
COGENERATION	COGENERATION	1
FCC	FLUID CATALYTIC CRACKING UNITS	0
FLARES	FLARES	0.94
FOOD PROCESSING	VEGETABLE OIL PROCESSING	0.01
FURNACE, GLASS	GLASS MELTING FURNACE	0.04
GAS TURBINE	UTILITY TURBINES - GASESOUS	0.73
GAS TURBINE	UTILITY TURBINES - LIQUIDS	0.01
HEATER	REFINERY BOILERS & HEATERS - GASEOUS	1.3
HEATER	REFINERY BOILERS & HEATERS - LIQUID FUELS	0.25
HEATER	PIPLINE HEATERS	0
IC ENGINE	FARM EQUIPMENT (DIESEL)	0.2
IC ENGINE	MARINE DIESEL ENGINES	2.1
IC ENGINE	NON-FAM EQUIPMENT (DIESEL)	13
IC ENGINE	NON-UTILITY IC ENGINES - LIQUID	2
IC ENGINE	NON-UTILITY IC ENGINES - GASEOUS	19
IC ENGINE	FARM EQUIPMENT (GASOLINE)	0.03
IC ENGINE	NON-FARM EQUIPMENT (GASOLINE)	15
IC ENGINE	UTILITY IC ENGINES - LIQUIDS	0.12
IC ENGINE	MARINE VESSELS - COMBUSTION	0.39
PAINT	PAINT MANUFACTURING	2.3
PHARMACEUTICAL	PHARMACEUTICAL MANUFACTURING	0.67
PRINTING	GRAPHIC ARTS-EXCPT LITHO/L	7.6
PRINTING	GRAPHIC ARTS-LITHO/LITR PRSS	1.7
RUBBER MANU	RUBBER PRODUCT FABRICATION	13
RUBBER MANU	RUBBER PRODUCTS MANUFACTURING	2.7
STEAM GENERATOR	TEOR STEAM GENERATORS - GASEOUS	0.02
STEAM GENERATOR	TEOR STEAM GENERATORS LIQUIDS	0.01
SULFUR RECOVERY	SULFUR RECOVERY UNITS	0

\*Final Air Quality Management Plan, Appendix III-A, July 1991























TABLE 9. SUMMARY OF MAJOR VALIDATION AND EXTRACTION PROBLEMS.

Report ID	Device ID*	Number of Tests	Contractor ID	Device Type	Material Used	Review Date	Comment	Calculation Check Status
2548A	416	1	A	Furnace, glass	Sand, limestone, soda	3/21/95		P
2514A	430	1	A	Furnace, melting	Brass, bronze ingot, scrap	4/11/95		P
2530A	417	1	A	Internal combustion engine	Diesel	3/22/95	9	F-429, ND-430
2507A	418	1	A	Turbine	Natural gas	3/23/95		F-430
2551A	**	1	B	Furnace, float glass	Silica sand, dolomite, etc.		1	
2076A	626	4	B	Devolatilizer/Extruder/Mix Tank/Reactor	Styrene monomer	2/17/95	11	
2076A	627	1	B	Reactor	Styrene monomer	2/17/95	11	
2076A	628	2	B	Storage Silos	Styrene monomer	2/17/95	11	
2076A	629	1	B	Storage Silo	Styrene monomer	2/17/95	11	
2552A	128	1	C	Boiler	No. 6 fuel oil	12/9/94	9	P
2340A	129	1	C	Furnace, glass	Sand, limestone, soda ash	12/13/94		P
2340A	130	1	C	Furnace, glass	Sand, limestone, soda ash	12/13/94		P
2553A	131	1	C	Turbine	No. 2 distillate oil	12/14/94		P
2116A	431	1	D	Fluidized bed combustor	Coal	4/18/95		ND-430
2322A	**	2	D	Furnace, lead and kirksite pots	Lead/kirksite		1	
2599L	160	2	E	Asphalt blowing with blow/no blow cycle	Asphalt fumes	1/31/95	9	P
2444B	177	1	E	Turbine	Natural gas	3/17/95		P
2113A	429	1	E	Furnace, reverberatory	Aluminum scrap	4/10/95		P
2444A	178	1	E	Steam generator	Natural, CVR gas	3/17/95		P
2195A	**	1	F	Coating operation, paint booth	Paint		1	
2577B	**	1	G	Boiler	Wood waste, natural gas		1	
2388A	420	1	H	Plating operation, anodizing	Chromic acid	3/27/95		P
2388A	421	1	H	Plating operation, anodizing	Chromic acid	3/27/95		P
2426A	422	1	I	Boiler	Diesel	3/28/95	9	P
2536A	435	1	J	Steam generator	Crude Oil	4/21/95		ND-430
2580A	**	1	J	Internal combustion engine	Digester gas		1	
2025B	155	1	K	Furnace, chip melter	Aluminum	1/24/95		P
2053B	152	1	K	Furnace, dross	Aluminum	1/23/95	6	P
2053B	**	1	K	Furnace, dross	Aluminum		2	
2053C	153	1	K	Furnace, melting pot	Aluminum	1/23/95	6	P
2025A	154	1	K	Furnace, recuperator	Aluminum	1/24/95		P
2053A	151	1	K	Furnace, reverberatory	Aluminum	1/23/95	6	P
2053A	**	2	K	Furnace, reverberatory	Aluminum		2	
2352A	**	4	K	Internal combustion engine	Natural gas		10	
2567A	423	1	L	Asphalt production, drum dryer	Aggregate, Diesel	3/29/95	12, 13	P
2544A	603	1	M	Fluidized bed combustor	Coal	12/8/94	3	P
2550A	605	1	M	Fluidized bed combustor	Coal	12/16/94	3	F-430
2011A	604	1	M	Boiler	No. 6 fuel oil	12/12/94	9	P
2026A	606	1	M	Boiler	No. 6 fuel oil	12/15/94	9	
2424A	630	2	M	Boiler, utility	No. 6 fuel oil/Natural gas	2/22/95	9	P
2525A	631	1	M	Boiler, utility	No. 6 fuel oil	3/1/95	9	P
2027A	**	2	M	Boiler, utility	No. 6 fuel oil/Natural gas		15	
2378A	633	2	M	Boiler, utility	No. 6 fuel oil/Natural gas	3/3/95	9	F-425, 430
2419A	634	2	M	Boiler, utility	No. 6 fuel oil/Natural gas	3/20/95	9	P
2491A	635	1	M	Fluidized bed combustor	Coal	3/7/95		F-430
2500A	601	1	M	Fluidized bed combustor	Coal	11/30/95	9	P
2421A	641	1	M	Fluidized bed combustor	Coke	3/24/95	9	P
2425A	640	1	M	Fluidized bed combustor	Coke	3/23/95	9	P
2386A	636	1	M	Internal combustion engine	Diesel	3/8/95	9	
2513C	637	1	M	Internal combustion engine	Diesel	3/9/95	9	P
2205A	**	1	M	Kiln, cement	Limestone, silica sand, clay		1	
2513A	638	1	M	Steam generator	Crude oil	3/14/95	9	P
2525B	632	1	M	Turbine	Diesel	3/2/95	9	NR
2028A	639	2	M	Turbine	No 2 distillate oil/Natural gas	3/22/95	9	P
2132A	**	1	O	Plating operation, chrome tank	Chromic acid			F-All
2133A	**	1	O	Plating operation, chrome tank	Chromic acid			F-All
2186A	**	1	O	Plating operation, chrome tank	Chromic acid			F-All
2576B	**	1	P	Boiler	Wood waste/natural gas		1	
2474A	432	1	Q	Plating operation, hard	Chromic acid	4/20/95		P
2549A	101	1	Q	Fluidized bed combustor	Coal	11/30/94	9	P
2533A	138	1	Q	Boiler	No 6 fuel oil	1/9/95	9	
2549B	102	1	Q	Boiler	Fuel oil	11/30/94	9	NR
2537A	139	1	Q	Fluidized bed combustor	Agricultural waste	1/9/95	9	P
2554A	140	1	Q	Turbine	No 2 distillate oil	1/10/95	9	
2554B	141	1	Q	Turbine	Natural gas	1/10/95		NR
2596A	161	1	R	Boiler	Diesel	2/2/95		P
2004A	162	1	R	Furnace, electric induction air melt	Alloy stock	2/3/95		P
2041A	163	1	R	Furnace, glass	Sand, limestone, soda ash	2/13/95		P
2104A	157	1	R	Preheater kiln	Coal, limestone	1/26/95	3	P
2150A	165	1	S	Asphalt production, rotary dryer	Aggregate, Natural gas	2/17/95	9	ND
2449A	164	1	S	Asphalt production, drum dryer	Aggregate, Diesel	2/15/95		P
2049A	166	1	S	Furnace, reverberatory	Aluminum ingots and scrap	2/22/95		P

TABLE 9. SUMMARY OF MAJOR VALIDATION AND EXTRACTION PROBLEMS.

Report ID	Device ID*	Number of Tests	Contractor ID	Device Type	Material Used	Review Date	Comment	Calculation Check Status
2460B	168	1	S	Internal combustion engine	Natural gas	3/1/95		F-430
2460B	169	1	S	Internal combustion engine	Natural gas	3/1/95		F-430
2460B	170	1	S	Internal combustion engine	Natural gas	3/1/95		F-430
2460B	171	1	S	Internal combustion engine	Natural gas	3/1/95		F-430
2106A	424	1	S	Kiln, cement	Limestone, Coal	3/29/95		ND
2478A	136	1	S	Turbine	No. 2 distillate oil	1/5/95	3	F-425
2480A	167	1	S	Turbine	Natural gas	2/22/95		P
2593A	172	1	S	Turbine	Natural gas	3/8/95	9	F-430
2375C	112	1	T	Internal combustion engine	Diesel	12/6/94	8.9	NR
2375C	113	1	T	Internal combustion engine	Diesel	12/6/94	8.9	NR
2409A	114	1	T	Internal combustion engine	Field gas	12/8/94	7	P
2409A	115	1	T	Internal combustion engine	Field gas	12/8/94	7	NR
2409A	116	1	T	Internal combustion engine	Natural gas	12/8/94	7	NR
2409A	117	1	T	Internal combustion engine	Natural gas	12/8/94	7	NR
2409A	118	1	T	Internal combustion engine	Field gas	12/8/94	7	NR
2409A	119	1	T	Internal combustion engine	Field gas	12/8/94	7	NR
2409A	120	1	T	Internal combustion engine	Field gas	12/8/94	7	NR
2409A	121	1	T	Internal combustion engine	Natural gas	12/8/94	7	NR
2409A	122	1	T	Internal combustion engine	Natural gas	12/8/94	7	NR
2409A	123	1	T	Internal combustion engine	Natural gas	12/8/94	7	NR
2409A	124	1	T	Internal combustion engine	Natural gas	12/8/94	7	NR
2409A	125	1	T	Internal combustion engine	Natural gas	12/8/94	7	NR
2409A	126	1	T	Internal combustion engine	Natural gas	12/8/94	7	NR
2409A	127	1	T	Internal combustion engine	Field gas	12/8/94	7	NR
2375B	111	1	T	Steam generator	Crude oil	12/6/94	8.9	P
2375A	110	1	T	Steam generator	Natural gas	12/6/94		NR
2007A	425	1	U	Kiln, calcining coke to petro products	Coke, Natural gas	4/3/95		F-430
2370A	623	1	V	Asphalt production, rotary dryer	Aggregate, Natural gas	2/6/95		P
2372A	159	1	V	Asphalt production, drum dryer	Aggregate, Diesel	1/30/95	9	P
2387A	624	1	V	Asphalt production, drum dryer	Aggregate, Natural gas	2/14/95	9	P
2391A	158	1	V	Asphalt production, rotary dryer	Aggregate, Oil	1/30/95	9	P
2393A	**	1	V	Asphalt production, rotary dryer	Aggregate			F-All
2161A	433	1	W	Furnace, metal cleaning	Metal Drums	4/20/95		ND-430
2317B	100	1	X	Boiler	Landfill gas	11/30/94	5.9	P
2207A	**	2	X	Internal combustion engine	Diesel		1	
2331A	**	1	X	Internal combustion engine	Digester gas		1	
2114A	426	1	Y	Kiln, cement	Raw material, Coal	4/6/95	3	P
2418A	620	1	Z	Plating operation, anodizing	Chromic acid	1/17/95		P
2418A	621	1	Z	Plating operation, hard	Chromic acid	1/17/95		P
2418A	622	1	Z	Plating operation, hard	Chromic acid	1/17/95		P
2134A	**	1	AA	Furnace, cupola	Iron, coke, limestone		14	
2473A	611	1	AB	Coating operation, paint booth	Green primer	1/10/95		P
2473A	612	2	AB	Coating operation, paint booth	Green primer/Green polyurethane	1/10/95		NR
2473A	613	1	AB	Coating operation, paint booth	Green primer	1/10/95		NR
2473A	614	2	AB	Coating operation, paint booth	Green primer/Green polyurethane	1/10/95		NR
2473A	615	1	AB	Coating operation, paint booth	Green primer	1/10/95		NR
2473A	616	2	AB	Coating operation, paint booth	Green primer/Green polyurethane	1/10/95		NR
2473A	617	2	AB	Coating operation, paint booth	Green primer/Green polyurethane	1/10/95		NR
2473A	618	2	AB	Coating operation, paint booth	Green primer/Green polyurethane	1/10/95		NR
2473A	619	1	AB	Coating operation, paint booth	Yellow polyurethane	1/10/95		NR
2140A	602	4	AB	Coating operation, plasma arc	4 difference powder coatings	12/7/94		P
2397A	607	3	AB	Coating operation, plasma arc	3 difference powder coatings	1/5/95		P
2062A	608	2	AB	Plating operation, hard with/without polyballs	Chromic acid	1/9/95		P
2067A	609	2	AB	Plating operation, hard high/typical amps	Chromic acid	1/9/95		ND
2067A	**	3	AB	Plating operation, hard	Chromic acid		2	
2357A	610	1	AB	Plating operation, hard	Chromic acid	1/9/95		P
2483A	143	1	AD	Boiler	No. 6 fuel oil	1/12/95	9	P
2484A	142	1	AD	Boiler	No. 6 fuel oil	1/11/95	3	P
2403A	144	1	AD	Turbine	Field gas	1/13/95		P
2486A	145	1	AD	Turbine	Natural gas	1/13/95		P
2541A	146	1	AD	Heater	Pipeline oil	1/17/95	3	P
2102A	147	1	AD	Internal combustion engine	Natural gas	1/17/95		P
2102A	148	1	AD	Internal combustion engine	Natural gas	1/17/95		P
2102C	149	1	AD	Internal combustion engine	Natural gas	1/17/95		P
2102D	150	1	AD	Turbine	Natural gas	1/17/95		P
2496A	156	1	AE	Internal combustion engine	Natural gas	1/25/95		F-430
2497A	175	1	AE	Internal combustion engine	Natural gas	3/9/95		F-430
2498A	174	1	AE	Internal combustion engine	Natural gas	3/9/95		P
2400A	173	1	AE	Internal combustion engine	Natural gas	3/8/95		F-430
2400A	**	3	AE	Internal combustion engine	Natural gas		2	
2586A	176	1	AE	Turbine	Landfill gas	3/16/95		P
2008A	105	1	AF	Asphalt production, rotary dryer	Aggregate, Diesel	12/1/94		P

TABLE 9. SUMMARY OF MAJOR VALIDATION AND EXTRACTION PROBLEMS.

Report ID	Device ID*	Number of Tests	Contractor ID	Device Type	Material Used	Review Date	Comment	Calculation Check Status
2008B	106	1	AF	Asphalt production, rotary dryer	Aggregate, Process Oil 70	12/1/94		P
2008C	103	1	AF	Asphalt production, rotary dryer	Aggregate, Natural gas	12/1/94		P
2008D	104	1	AF	Asphalt production, rotary dryer	Aggregate, Natural gas	12/1/94		P
2405A	107	1	AF	Heater	Natural gas	12/5/94		P
2405B	108	1	AF	Steam generator	Natural, CVR gas	12/5/94		NR
2405C	109	1	AF	Turbine	Natural gas	12/5/94		NR
2101B	415	1	AG	Boiler	Diesel	3/20/95	9.12	ND
2101A	414	1	AG	Internal combustion engine	Diesel	3/17/95		P
2042A	132	1	AH	Internal combustion engine	Landfill gas	12/14/94		P
2043A	133	1	AH	Internal combustion engine	Landfill gas	12/15/94	9	F-430,429
2021A	134	1	AH	Internal combustion engine	Natural gas	1/4/95		ND
2021A	135	1	AH	Internal combustion engine	Natural gas	1/4/95		ND
2493A	137	1	AI	Boiler	Wood	1/6/95		F-430
2508A	413	1	AI	Fluidized bed combustion	Wood waste	3/16/95		F-430
2481A	411	1	AI	Heater	Natural gas, Refinery fuel gas	3/15/95		P
2509A	410	1	AI	Internal combustion engine	Diesel	3/13/95		P
2540A	412	1	AI	Internal combustion engine	Diesel	3/15/95		P
2429A	427	1	AK	Kiln, cement	Raw material, coal, coke	4/6/95		P
2395B	179	1	AL	Boiler	Diesel	3/20/95		P
2395B	180	1	AL	Boiler	Diesel	3/20/95		NR
2395B	181	1	AL	Boiler	Diesel	3/20/95		NR
2070A	**	1	AM	Furnace, reverberatory	Ubc, internal scrap, ingots, m/c		4	
2311A	**	1	AM	Furnace, steel melting	Metal		4	
2450A	428	1	AN	Boiler	Diesel	4/6/95		ND
2396A	434	1	AO	Boiler	Residual fuel	4/20/95		P

\*Device ID assigned on entry.

\*\*Data not extracted for this device.

F - Failed calculation check.

P - Passed calculation check.

NR - Calculation check not required because calculations checked for another device in report.

ND - Not enough data to check calculations.

1. Emission factor cannot be calculated (Data not validated or extracted).
2. Original estimate of devices incorrect (Data not validated or extracted).
3. Dioxin/PAH sampled using a single train (Data extracted and noted in the database).
4. Separate front/backhalf analysis conducted for CARB 436 (Results not extracted).
5. Used outdated method without CARB approval.
6. Method 421 sampling was not isokinetic and stack temp < 250F (Data not extracted).
7. Naphthalene analyzed by method 410 (Data not extracted).
8. Nonisokinetic sampling method 429.
9. Full set of internal standards not used for method 429.
10. No air toxics (Data not extracted).
11. Sampling by method 422 only. No calculation checks required for this method.
12. Limited supporting documentation.
13. Single run only.
14. All sampling done non-isokinetically.
15. Two different types of fuel fired during testing (Data not validated or extracted).

TABLE 10. KEY DESIGN AND OPERATING PARAMETERS.

*Asphalt Production*

- type of production process — conventional or drum mix
- methods of recycling, if any
- production rate
- plant capacity
- gas flow rate
- existence of scavenger system
- temperature of asphaltic cement and aggregate in pug mill
- type of fuel
- type of air pollution control device, if any

*Cement Kilns*

- type of production process — wet or dry
- use of a preheater or precalciner
- existence of an alkali bypass stack
- production rate
- plant capacity
- type of fuel
- type of air pollution control device, if any

*Glass Manufacturing*

- type of glass being manufactured — soda-lime, lead, fused silica, etc.
- type of grease and oil lubricant used on machinery in forming and finishing phase
- frequency and magnitude of glass gobs contacting machine lubricant
- type of fuel
- type of air pollution control device, if any

*Metal Furnaces*

- type of metal being processed
- quality of scrap (i.e. dirt, oil, and moisture laden)
- level and type of scrap preparation and treatment — solvent degreasing, heat, etc.
- process used to charge and melt metal — batch or continuous
- type of furnace — electric arc, induction, reverberatory, etc.
- whether furnace is open or closed system
- if open, number of process phases in which the furnace doors and lids are open — charging, backcharging, alloying, tapping, etc.
- type of cover fluxes and demagging agents used
- type of fuel
- type of air pollution control device, if any

*Polystyrene Manufacturing*

- type of polystyrene being manufactured — high-impact or expandable
- grade of polystyrene being produced (i.e., lower molecular weights)
- type of production process — batch or continuous
- the polymerization technique — bulk, solution, suspension, or emulsion
- operating characteristics of the vacuum devolatilizer condenser
- type of vacuum system used to collect condensate — steam ejectors or vacuum pumps
- condenser coolant operating temperature
- type of air pollution control device, if any

TABLE 10. KEY DESIGN AND OPERATING PARAMETERS (CONTINUED)

*Chrome Plating Operations*

- type of cleaning process utilized prior to electroplating — wire brushing, electrocleaning, or pickling
- type of solvents used during cleaning of work piece
- purpose of electroplating — decorative or hard-plating
- efficiency of electroplating process (i.e. % of current used for actual electroplating as opposed to electrolysis)
- type of air pollution control device, if any

*Surface Coating Operations*

- type of coating operation — toll or captive
- coating application procedures — conventional spray, airless spray, roller, dip, etc.
- coating formulations (i.e., solvent-based, waterborne, powder)
- amount of volatile matter in the coating
- type of add-on emission controls, if any

*External Combustion*

- Type of unit - boiler, process heater, fluidized bed, steam generator
- Configuration of unit - direct fire, tangential, turbo, wall fired, spreader, pulverized, circulating
- Type of fuel
- Capacity and Load - MMBtu/hr, MWe
- Manufacturer
- Burner type - low NO<sub>x</sub>, conventional
- Air preheat
- NO<sub>x</sub> control - flue gas recirculation, staged combustion, water injection, steam injection
- Operating parameters - combustion temperature, residence time, oxygen
- Type of add-on emission controls, if any

*Internal Combustion Engines*

- Manufacturer
- Type of fuel
- Capacity and Load - bhp
- Ignition - spark ignition or compression ignition
- Injection - direct injection or indirect injection
- Rich or lean operation
- Strokes - 2 or 4
- Compression ratio
- NO<sub>x</sub> control - exhaust gas recirculation, turbo charge, water injection, charge cooling, ignition retard, injection retard, steam injection
- Engine speed, rpm
- Type of add-on emission controls, if any

*Turbines*

- Manufacturer
- Type of fuel
- Capacity and Load - MWe
- NO<sub>x</sub> control - exhaust gas recirculation, water injection, steam injection
- Compression ratio
- Engine speed, rpm
- Type of add-on emission controls, if any

TABLE 11. ASSIGNED SOURCE CLASSIFICATION CODES AND UNITS.

SCC	Description 1	Description 2	Description 3	Description 4	Ef. unit
10100217	External Combustion Boilers	Electric Generation	Bituminous Coal	Atmospheric Fluidized Bed Combustion	lbs/ton
10100401	External Combustion Boilers	Electric Generation	Residual Oil	Grade 6 Oil: Normal Firing	lbs/Mgal
10100601	External Combustion Boilers	Electric Generation	Natural Gas	Boilers > 100 MBtu/Hr except Tangential	lbs/MMcf
10100801	External Combustion Boilers	Electric Generation	Coke	All Boiler Sizes	lbs/ton
10100903	External Combustion Boilers	Electric Generation	Wood/Bark Waste	Wood-Fired Boiler	lbs/ton
10200401	External Combustion Boilers	Industrial	Residual Oil	Grade 6 Oil	lbs/Mgal
10200402	External Combustion Boilers	Industrial	Residual Oil	10-100 MMBTU/hr	lbs/Mgal
10200403	External Combustion Boilers	Industrial	Residual Oil	<10 MMBTU/hr	lbs/Mgal
10200501	External Combustion Boilers	Industrial	Distillate Oil	Grades 1 and 2 Oil	lbs/Mgal
10300501	External Combustion Boilers	Commercial/Institutional	Distillate Oil	Grades 1 and 2 Oil	lbs/Mgal
10300811	External Combustion Boilers	Commercial/Institutional	Landfill Gas	All Boiler Types	lbs/MMcf
20100101	Internal Combustion Engines	Electric Generation	Distillate Oil/Diesel	Turbine	lbs/Mgal
20100102	Internal Combustion Engines	Electric Generation	Distillate Oil/Diesel	Reciprocating	lbs/Mgal
20100801	Internal Combustion Engines	Electric Generation	Landfill Gas	Turbine	lbs/Mgal
20100802	Internal Combustion Engines	Electric Generation	Landfill Gas	Reciprocating	lbs/MMcf
20200102	Internal Combustion Engines	Electric Generation	Distillate Oil/Diesel	Reciprocating	lbs/Mgal
20200103	Internal Combustion Engines	Industrial	Distillate Oil/Diesel	Turbine: Cogeneration	lbs/Mgal
20200201	Internal Combustion Engines	Industrial	Natural Gas	Turbine	lbs/MMcf
20200202**	Internal Combustion Engines	Industrial	Natural Gas	Reciprocating	lbs/MMcf
20200203**	Internal Combustion Engines	Industrial	Natural Gas	Turbine: Cogeneration	lbs/MMcf
20200252**	Internal Combustion Engines	Industrial	Natural Gas	2-Cycle Lean Burn	lbs/MMcf
20200254**	Internal Combustion Engines	Industrial	Natural Gas	4-Cycle Rich Burn	lbs/MMcf
20300101	Internal Combustion Engines	Industrial	Natural Gas	Reciprocating	lbs/Mgal
30101817	Miscellaneous Industries	Commercial/Institutional	Distillate Oil/Diesel	Polystyrene: General	lbs/lbs production
30101818	Miscellaneous Industries	Chemical Manufacturing	Plastics Production	Polystyrene: Reactor	lbs/lbs production
30300926	Miscellaneous Industries	Chemical Manufacturing	Iron and Steel Production	Electric Induction Furnace	lbs/ton production
30400103	Miscellaneous Industries	Primary Metal Production	Secondary Aluminum Production	Smelting Furnace/Reverberatory	lbs/ton production
30400107	Miscellaneous Industries	Secondary Metal Production	Secondary Aluminum Production	Hot Dross Processing	lbs/ton production
30400199	Miscellaneous Industries	Secondary Metal Production	Secondary Aluminum Production	Other - Not Classified	lbs/ton production
30400224	Miscellaneous Industries	Secondary Metal Production	Secondary Copper Production	Electric Induction: Charge with Bras	lbs/ton production
30500205	Miscellaneous Industries	Petroleum Industry	Asphaltic Concrete	Rotary Dryer: Hot Asphalt Plants	lbs/ton production
30500211	Miscellaneous Industries	Petroleum Industry	Asphaltic Concrete	Rotary Dryer-Conventional Plant with Cyclone	lbs/ton production
30500606	Miscellaneous Industries	Mineral Products	Cement Manufacturing: Dry Process	Kilns	lbs/ton production
30501402	Miscellaneous Industries	Mineral Products	Glass Manufacturing	Container Glass: Melting Furnace	lbs/ton production
30501403	Miscellaneous Industries	Mineral Products	Glass Manufacturing	Flat Glass: Melting Furnace	lbs/ton production
30501622	Miscellaneous Industries	Mineral Products	Lime Manufacturing	Calcinig: Coal Fired Rotary Preheater Kiln	lbs/ton production
30600199*	Miscellaneous Industries	Petroleum Industry	Petroleum Refining	Process Heaters: Natural/Process Gas-Fired	lbs/MMcf
30601101	Miscellaneous Industries	Petroleum Industry	Petroleum Refining	Asphalt Blowing: General	lbs/MMcf
30601401	Miscellaneous Industries	Petroleum Industry	Petroleum Refining	Petroleum Coke: Calciner	lbs/ton coke
30901006	Miscellaneous Industries	Fabricated Metal Products	Electroplating/Reclamation	Entire Process-Chrome	mg/amp-hr
30902501	Miscellaneous Industries	Oil and Gas Production	Drum Cleaning/Reclamation	Drum Burning Furnace	lbs/drum
31000403	Miscellaneous Industries	Oil and Gas Production	Fuel Fired Equipment	Process Heaters:Crude Oil	lbs/Mgal
31000404	Miscellaneous Industries	Oil and Gas Production	Fuel Fired Equipment	Process Heaters:Natural Gas	lbs/MMcf
31000413	Miscellaneous Industries	Oil and Gas Production	Fuel Fired Equipment	Steam Generators:Crude Oil	lbs/Mgal
31000414	Miscellaneous Industries	Oil and Gas Production	Fuel Fired Equipment	Steam Generators:Natural Gas	lbs/MMcf
31000499*	Miscellaneous Industries	Oil and Gas Production	Fuel Fired Equipment	Steam Generators: Natural/Process Gas-Fired	lbs/MMcf
40200101	Organic Solvent Evaporation	Surface Coating Operations	Solvent-Base Paint	General	lbs/lbs powder
40200110	Organic Solvent Evaporation	Surface Coating Operations	Solvent-Base Paint	General	lbs/gal paint
40200610	Organic Solvent Evaporation	Surface Coating Operations	Primer	General	lbs/gal paint
40202499	Organic Solvent Evaporation	Surface Coating Operations	Large Aircraft	Other - Not Classified	lbs/lbs powder

\*No SCC available.

\*\*Also used for field gas fired engines

TABLE 12. LISTING OF SECONDARY AND PRIMARY VALIDATION CHECKS FOR CARB AND EPA METHODS APPLICABLE TO PROJECT (a).

CHECK	11	12	15	101A	104	106	410	421	421	422	422	423	424	425	425	428	428	429	430	433	EPA	436	
	83	86	83	86	86	83	86	87	91	87	87	87	87	87	87	88	90	89	89	89	Metals	91,92	
<b>SAMPLE LOCATION</b>																							
Swirl Check		S		S				S	S			S	S	S	S	S	S	S		S	S	S	S
Stack Size		S		S				S	S			S	S	S	S	S	S	S		S	S	S	S
Number of Sample Points		S		S				S	S			S	S	S	S	S	S	S		S	S	S	S
<b>SAMPLING EQUIPMENT</b>																							
Nozzle Size Check		S		S				S	S			S	S	S	S	S	S	S		S	S	S	S
Field Gas Dry Meter Calibration	S	S		S				S	S			S	S	S	S	S	S	S		S	S	S	S
Pitot Tube Semi-Annual Calibration		S		S				S	S			S	S	S	S	S	S	S		S	S	S	S
Tedlar Bag Contamination Check							P		P														
<b>SAMPLING PROCEDURES</b>																							
Number of Sample Runs								S	S														S
Length of Sample Time								S	S														S
Leak Check	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Sample Line Loss		S	S	S	S	S	S	S	S			S	S	S	S	S	S	S		S	S	S	S
Isokinetic Variation		S		S				S	S			S	S	S	S	S	S	S		S	S	S	S
Field Reagent Blank	P	P		P				P	P			P	P	P	P	P	P	P		P	P	P	P
Field Blank																							
Field Spike																							
Surrogate Recovery																							
Probe Proof																							
Filter Temperature																							
Flow Rate Level																							
Sample Date																							
Correct Impinger Solutions	S	S						S	S			S											S
<b>ANALYSIS</b>																							
Correct Method Used	S	S	S	S	S	S	S	S	S	S	S	S	S										
Extraction Date																							
Analysis Date																							
3-Point Calibration																							
Matrix Spike Recovery																							
Lab Spike Recovery																							
Lab Control Spike Recovery																							
Internal Standard Recovery																							
Duplicate Percent Difference																							
Separate Impinger Analysis																							
<b>PRIMARY PARAMETER SUMMARY</b>																							
Sufficient Documentation	1	1	0	1	1	1	2	2	2	3	1	1	1	2	3	3	3	4	3	1	2	3	3
Total	1	1	0	1	1	1	2	3	3	5	1	1	1	3	4	4	4	6	5	1	3	5	5

P - Primary validation parameter.

S - Secondary validation parameter.

Blank - Check not applicable for method.

(a) - Table described in Section 6.3 Background

TABLE 13. METHOD RATING SUMMARY.

Sample Method	Version	Substance	Number of Tests at Method Rating				
			E	D	C	B	A
CARB 101A	86	Mercury	0	-	1	-	3
CARB 104	86	Beryllium	0	-	5	-	2
CARB 106	83	Vinyl Chloride	0	-	0	-	2
CARB 11	83	Hydrogen Sulfide	0	-	9	-	0
CARB 12	86	Lead	0	-	3	-	2
CARB 15	83	Hydrogen Sulfide	0	-	0	-	1
CARB 410A	86	BTX	0	-	39	-	37
CARB 421	87	HCl	0	-	10	-	2
	91	HCl	0	-	2	-	0
CARB 422	87	VOC	0	-	2	-	2
	91	VOC	0	-	6	-	4
CARB 423	87	Arsenic	0	-	3	-	5
CARB 425	87	Chromium (Hex)	0	-	6	-	10
	90	Chromium (Hex)	0	-	48	-	7
CARB 428	88	Dioxin & Furan	0	-	5	-	1
	90	Dioxin & Furan	0	-	3	-	8
CARB 429	89	PAH	0	-	41	-	43
CARB 430	89	Aldehydes	0	-	35	-	44
	91	Aldehydes	0	-	11	-	14
CARB 433	89	Nickel	0	-	10	-	1
CARB 436	92	Trace Metals	0	-	11	-	3
EPA MMT	89	Trace Metals	0	32	-	4	-
?	na	Ethylbenzene & Styrene	2	a	-	a	-
EPA 30	na	BTX	1	a	-	a	-
EPA 420.1	na	Phenol	1	a	-	a	-
EPA M5	na	Chloride and Fluoride	2	a	-	a	-
NIOSH 1612	na	Propylene Oxide	1	a	-	a	-
SCAQMD 205.1	na	Chromium (Hex)	1	a	-	a	-
SCAQMD 25.1	na	Ethylbenzene & Styrene	1	a	-	a	-
SCAQMD 5.2	na	Particulate	1	a	-	a	-
ST-1B	na	Ammonia	1	a	-	a	-

na - not available.

- does not apply.

a - no validation conducted.

TABLE 14. IMPACT OF DEFAULT ASSUMPTIONS ON METHOD RATING.

System Type	Device ID	Assumption	Data Affected	Method Rating
Asphalt Prod., Diesel	164	FEP	All	Set to E
Boiler, Distillate	161	H	All	No Change
Cement Kiln, Coal	426	FEP	All	Set to E
Cement Kiln, Coal/Coke	427	FEP	All	Set to E
Coating, Green PE	612	D	All	Set to E
Coating, Green PE	614	D	All	Set to E
Coating, Green PE	616	D	All	Set to E
Coating, Green PE	617	D	All	Set to E
Coating, Green PE	618	D	All	Set to E
Coating, Green Primer	611	D	All	Set to E
Coating, Green Primer	612	D	All	Set to E
Coating, Green Primer	613	D	All	Set to E
Coating, Green Primer	614	D	All	Set to E
Coating, Green Primer	615	D	All	Set to E
Coating, Green Primer	616	D	All	Set to E
Coating, Green Primer	617	D	All	Set to E
Coating, Green Primer	618	D	All	Set to E
Coating, Yellow PE	619	D	All	Set to E
Furnace, Glass	163	FEP	All	Set to E
Turbine, Distillate	131	D	All	No Change
Turbine, Distillate	136	D	All	No Change
Turbine, Distillate	140	O	VOC	Set to E
Turbine, Distillate	639	D	All	No Change
Turbine, Natural Gas	176	H	All	No Change
Turbine, Nautral Gas	418	H	All	No Change

D - Assumed density

H - Assumed heating value

O - Assumed stack oxygen

FEP - Assumed feed equal to production

TABLE 15. MAJOR GROUPS AND COMPARISON MATRIX.

Major Group	Device ID	Material/Fuel Type	Oxygen Level	SCC	Strokes per Cycle	Comparison Parameters			Furnace Type	Spray Method	Region
						Capacity	Contractor	APC System			
Asphalt Blowing, Blow Cycle	160	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Asphalt Blowing, No Blow Cycle	160	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Asphalt Prod., Diesel	105	NC	NC	30500211	NC	NC	Other	C/FF	NC	NC	
Asphalt Prod., Diesel	159	NC	NC	30500205	NC	NC	V	C/W/S	NC	NC	
Asphalt Prod., Diesel	164	NC	NC	30500205	NC	NC	Other	FF	NC	NC	
Asphalt Prod., Diesel	423	NC	NC	30500205	NC	NC	Other	W/S	NC	NC	
Asphalt Prod., Natural Gas	103	NC	NC	30500211	NC	NC	Other	C/W/S	NC	NC	
Asphalt Prod., Natural Gas	104	NC	NC	30500211	NC	NC	Other	C/FF	NC	NC	
Asphalt Prod., Natural Gas	165	NC	NC	30500211	NC	NC	Other	C/FF	NC	NC	
Asphalt Prod., Natural Gas	623	NC	NC	30500211	NC	NC	V	C/W/S	NC	NC	
Asphalt Prod., Natural Gas	624	NC	NC	30500205	NC	NC	V	FF	NC	NC	
Asphalt Prod., Oil	106	Process Oil 70	NC	NC	NC	NC	Other	NC	NC	NC	
Asphalt Prod., Oil	158	Fuel Oil	NC	NC	NC	NC	V	NC	NC	NC	
Boiler, Distillate	161	NC	NC	10200501	NC	NC	NC	NC	NC	NC	
Boiler, Distillate	179	NC	NC	10300501	NC	NC	NC	NC	NC	NC	
Boiler, Distillate	180	NC	NC	10300501	NC	NC	NC	NC	NC	NC	
Boiler, Distillate	181	NC	NC	10300501	NC	NC	NC	NC	NC	NC	
Boiler, Distillate	415	NC	NC	10300501	NC	NC	NC	NC	NC	NC	
Boiler, Distillate	422	NC	NC	10300501	NC	NC	NC	NC	NC	NC	
Boiler, Distillate	428	NC	NC	10300501	NC	NC	NC	NC	NC	NC	
Boiler, Fuel Oil	102	Fuel Oil	NC	10100501	NC	NC	NC	FF	NC	NC	
Boiler, Fuel Oil	128	No. 6 Fuel Oil	NC	10200401	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	138	No. 6 Fuel Oil	NC	10200401	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	142	No. 6 Fuel Oil	NC	10200403	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	143	No. 6 Fuel Oil	NC	10200402	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	434	Residual Fuel	NC	10200401	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	604	No. 6 Fuel Oil	NC	10200401	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	606	No. 6 Fuel Oil	NC	10200401	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	630	No. 6 Fuel Oil	NC	10100401	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	631	No. 6 Fuel Oil	NC	10100401	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	633	No. 6 Fuel Oil	NC	10100401	NC	NC	NC	None	NC	NC	
Boiler, Fuel Oil	634	No. 6 Fuel Oil	NC	10100401	NC	NC	NC	None	NC	NC	
Boiler, Landfill Gas	100	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Boiler, Natural Gas	630	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Boiler, Natural Gas	633	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Boiler, Natural Gas	634	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Boiler, Wood	137	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Cement Kiln, Coal	424	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Cement Kiln, Coal	426	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Cement Kiln, Coal/Coke	427	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Coating, Green PE	612	NC	NC	NC	NC	NC	NC	WC	HVLP Spray Gun	NC	
Coating, Green PE	614	NC	NC	NC	NC	NC	NC	WT	HVLP Spray Gun	NC	
Coating, Green PE	616	NC	NC	NC	NC	NC	NC	PA	HVLP Spray Gun	NC	
Coating, Green PE	617	NC	NC	NC	NC	NC	NC	PA	HVLP Spray Gun	NC	
Coating, Green PE	618	NC	NC	NC	NC	NC	NC	BF	HVLP Spray Gun	NC	
Coating, Green Primer	611	NC	NC	NC	NC	NC	NC	WC	Conventional	NC	
Coating, Green Primer	612	NC	NC	NC	NC	NC	NC	WC	HVLP Spray Gun	NC	
Coating, Green Primer	613	NC	NC	NC	NC	NC	NC	WT	HVLP Spray Gun	NC	

TABLE 15. MAJOR GROUPS AND COMPARISON MATRIX.

Major Group	Device ID	Material/Fuel Type	Oxygen Level	SCC	Strokes per Cycle	Comparison Parameters			Region		
						Capacity	Contractor	APC System			
Coating, Green Primer	614	NC	NC	NC	NC	NC	WT	NC	NC	HVLP Spray Gun	NC
Coating, Green Primer	615	NC	NC	NC	NC	NC	WSN	NC	NC	Conventional	NC
Coating, Green Primer	616	NC	NC	NC	NC	NC	PA	NC	NC	HVLP Spray Gun	NC
Coating, Green Primer	617	NC	NC	NC	NC	NC	PA	NC	NC	HVLP Spray Gun	NC
Coating, Green Primer	618	NC	NC	NC	NC	NC	BF	NC	NC	HVLP Spray Gun	NC
Coating, Powder	602	75% Cr3C2, 20% NiCr, 5% Cr	NC	40200101	NC	NC	None	NC	NC	NC	NC
Coating, Powder	602	87% Al2O3, 13% TiO2	NC	40200101	NC	NC	None	NC	NC	NC	NC
Coating, Powder	602	80% Ni, 20% Cr	NC	40200101	NC	NC	None	NC	NC	NC	NC
Coating, Powder	602	100% Chromium Oxide	NC	40200101	NC	NC	None	NC	NC	NC	NC
Coating, Powder	607	70% Ni, 4% Cr	NC	40202499	NC	NC	AF	NC	NC	NC	NC
Coating, Powder	607	49% Ni, 44% Cr	NC	40202499	NC	NC	AF	NC	NC	NC	NC
Coating, Powder	607	4% Ni, 96% Al	NC	40202499	NC	NC	AF	NC	NC	NC	NC
Coating, Yellow PE	619	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Coke Calcining	425	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Drum Burning Furnace	433	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
FBC, Biomass	139	Agricultural Waste	NC	NC	NC	NC	A/C/FF	NC	NC	NC	NC
FBC, Biomass	413	Wood Waste	NC	NC	NC	NC	A/C/ESP	NC	NC	NC	NC
FBC, Coal	101	NC	NC	NC	NC	NC	L/A/I/C/FF	NC	NC	NC	NC
FBC, Coal	431	NC	NC	NC	NC	NC	L/A/I/C/FF	NC	NC	NC	NC
FBC, Coal	601	NC	NC	NC	NC	NC	L/A/I/C/FF/ESP	NC	NC	NC	NC
FBC, Coal	603	NC	NC	NC	NC	NC	L/A/I/C/FF	NC	NC	NC	NC
FBC, Coal	605	NC	NC	NC	NC	NC	L/A/I/C/FF	NC	NC	NC	NC
FBC, Coal	635	NC	NC	NC	NC	NC	L/A/I/C/FF	NC	NC	NC	NC
FBC, Coke	640	NC	NC	NC	NC	NC	L/A/I/C/FF	NC	NC	NC	NC
FBC, Coke	641	NC	NC	NC	NC	NC	L/A/I/C/FF	NC	NC	NC	NC
Furnace, Alloy Steel	162	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Furnace, Aluminum	151	NC	NC	30400103	NC	NC	FF	Reverb.	NC	NC	NC
Furnace, Aluminum	152	NC	NC	30400107	NC	NC	FF	Dross	NC	NC	NC
Furnace, Aluminum	153	NC	NC	30400199	NC	NC	None	Melting Pot	NC	NC	NC
Furnace, Aluminum	154	NC	NC	30400199	NC	NC	None	NC	NC	NC	NC
Furnace, Aluminum	155	NC	NC	30400199	NC	NC	FF	NC	NC	NC	NC
Furnace, Aluminum	166	NC	NC	30400103	NC	NC	None	Reverb.	NC	NC	NC
Furnace, Aluminum	429	NC	NC	30400103	NC	NC	None	Reverb.	NC	NC	NC
Furnace, Brass/Bronze	430	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Furnace, Glass	129	NC	NC	30501402	NC	NC	FF	NC	NC	NC	NC
Furnace, Glass	130	NC	NC	30501402	NC	NC	None	NC	NC	NC	NC
Furnace, Glass	163	NC	NC	30501403	NC	NC	None	NC	NC	NC	NC
Furnace, Glass	416	NC	NC	30501403	NC	NC	None	NC	NC	NC	NC
Heater, Natural Gas	107	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Heater, Natural/Ref. Gas	411	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Heater, Oil	146	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
ICE, Diesel	112	NC	Oxygen > 13%	20200102	NC	NC	NC	NC	NC	NC	NC
ICE, Diesel	113	NC	Oxygen < 13%	20200102	NC	NC	NC	NC	NC	NC	NC
ICE, Diesel	410	NC	Oxygen > 13%	20200102	NC	NC	NC	NC	NC	NC	NC
ICE, Diesel	412	NC	Oxygen < 13%	20200102	NC	NC	NC	NC	NC	NC	NC
ICE, Diesel	414	NC	Oxygen < 13%	20300101	NC	NC	NC	NC	NC	NC	NC
ICE, Diesel	417	NC	Oxygen < 13%	20300101	NC	NC	NC	NC	NC	NC	NC
ICE, Diesel	636	NC	Oxygen > 13%	20100102	NC	NC	NC	NC	NC	NC	NC

TABLE 15. MAJOR GROUPS AND COMPARISON MATRIX.

Major Group	Device ID	Material/Fuel Type	Oxygen Level	Comparison Parameters				Furnace Type	Spray Method	Region
				SCC	Strokes per Cycle	Capacity	Contractor			
ICE, Diesel	637	NC	Oxygen > 13%	20200102	NC	NC	NC	NC	NC	NC
ICE, Field Gas	114	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	NC
ICE, Field Gas	115	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	NC
ICE, Field Gas	118	NC	Lean	20200252	2S	<650 Hp	NC	NC	NC	NC
ICE, Field Gas	119	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	NC
ICE, Field Gas	120	NC	Rich	20200254	4S	<650 Hp	NC	NC	NC	NC
ICE, Field Gas	127	NC	Lean	20200252	2S	>650 Hp	NC	NC	NC	NC
ICE, Landfill Gas	132	NC	NC	NC	NC	NC	NC	NC	NC	NC
ICE, Landfill Gas	133	NC	NC	NC	NC	NC	NC	NC	NC	NC
ICE, Natural Gas	116	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	117	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	121	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	122	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	123	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	124	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	125	NC	Lean	20200202	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	126	NC	Rich	20200254	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	134	NC	Rich	20200254	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	135	NC	Rich	20200254	4S	<650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	147	NC	Lean	20200252	2S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	148	NC	Lean	20200202	4S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	149	NC	Lean	20200202	4S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	156	NC	Lean	20200252	2S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	168	NC	Lean	20200202	4S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	169	NC	Lean	20200202	4S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	170	NC	Lean	20200202	4S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	171	NC	Lean	20200252	2S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	173	NC	Lean	20200202	4S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	174	NC	Lean	20200202	4S	>650 Hp	NC	NC	NC	Southern
ICE, Natural Gas	175	NC	Rich	20200254	4S	<650 Hp	NC	NC	NC	Central
ICE, Natural Gas	175	NC	Rich	20200254	4S	<650 Hp	NC	NC	NC	Central
Plating, Anodizing	420	NC	NC	NC	NC	NC	NC	WS	NC	NC
Plating, Anodizing	421	NC	NC	NC	NC	NC	NC	WS	NC	NC
Plating, Anodizing	620	NC	NC	NC	NC	NC	NC	DM/WS/FF	NC	NC
Plating, Hard	432	NC	NC	NC	NC	NC	NC	WS	NC	NC
Plating, Hard	608	NC	NC	NC	NC	NC	NC	DM	NC	NC
Plating, Hard	608	NC	NC	NC	NC	NC	NC	DM/PPB	NC	NC
Plating, Hard	609	NC	NC	NC	NC	NC	NC	DM/WS/PPB	NC	NC
Plating, Hard	609	NC	NC	NC	NC	NC	NC	DM/WS/PPB	NC	NC
Plating, Hard	610	NC	NC	NC	NC	NC	NC	WS	NC	NC
Plating, Hard	621	NC	NC	NC	NC	NC	NC	DM/WS/FF	NC	NC
Plating, Hard	622	NC	NC	NC	NC	NC	NC	DM/WS/FF	NC	NC
PM, Devolatilizer	626	NC	NC	NC	NC	NC	NC	NC	NC	NC
PM, Extruder	626	NC	NC	NC	NC	NC	NC	NC	NC	NC
PM, Mix Tank	626	NC	NC	NC	NC	NC	NC	NC	NC	NC
PM, Reactor	626	NC	NC	NC	NC	NC	NC	NC	NC	NC
PM, Reactor	627	NC	NC	NC	NC	NC	NC	NC	NC	NC
PM, Storage Silo	628	NC	NC	NC	NC	NC	NC	NC	NC	NC

TABLE 15. MAJOR GROUPS AND COMPARISON MATRIX.

Major Group	Device ID	Material/Fuel Type	Oxygen Level	SCC	Strokes per Cycle	Comparison Parameters				Furnace Type	Spray Method	Region
						Capacity	Contractor	APC System	Furnace Type			
PM, Storage Silo	628	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
PM, Storage Silo	629	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Preheater Kiln, Coal	157	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
SG, Crude Oil	111	NC	NC	NC	NC	NC	NC	SO <sub>2</sub> Scrub	NC	NC	NC	NC
SG, Crude Oil	435	NC	NC	NC	NC	NC	NC	None	NC	NC	NC	NC
SG, Crude Oil	638	NC	NC	NC	NC	NC	NC	SO <sub>2</sub> Scrub	NC	NC	NC	NC
SG, Natural Gas	110	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
SG, Natural/CVR Gas	108	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
SG, Natural/CVR Gas	178	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Turbine, Distillate	131	No. 2 Distillate	NC	20100101	NC	NC	NC	NC	NC	NC	NC	NC
Turbine, Distillate	136	No. 2 Distillate	NC	20200103	NC	NC	NC	NC	NC	NC	NC	NC
Turbine, Distillate	140	No. 2 Distillate	NC	20100101	NC	NC	NC	NC	NC	NC	NC	NC
Turbine, Distillate	632	Diesel	NC	20100101	NC	NC	NC	NC	NC	NC	NC	NC
Turbine, Distillate	639	No. 2 Distillate	NC	20200103	NC	NC	NC	NC	NC	NC	NC	NC
Turbine, Field Gas	144	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Turbine, Landfill Gas	176	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Turbine, Natural Gas	109	NC	NC	20200203	NC	NC	NC	NC	NC	NC	NC	Central
Turbine, Natural Gas	141	NC	NC	20200203	NC	NC	NC	NC	NC	NC	NC	Central
Turbine, Natural Gas	145	NC	NC	20200203	NC	NC	NC	NC	NC	NC	NC	Central
Turbine, Natural Gas	150	NC	NC	20200201	NC	NC	NC	NC	NC	NC	NC	Southern
Turbine, Natural Gas	167	NC	NC	20200203	NC	NC	NC	NC	NC	NC	NC	Central
Turbine, Natural Gas	172	NC	NC	20200203	NC	NC	NC	NC	NC	NC	NC	Northern
Turbine, Natural Gas	177	NC	NC	20200203	NC	NC	NC	NC	NC	NC	NC	Central
Turbine, Natural Gas	418	NC	NC	20200203	NC	NC	NC	NC	NC	NC	NC	Central
Turbine, Natural Gas	639	NC	NC	20200203	NC	NC	NC	NC	NC	NC	NC	Southern

NC - No Comparison  
 Lean - Oxygen < 2%  
 Rich - Oxygen > 2%  
 C - Cyclone  
 FF - Fabric Filter  
 WS - Wet Scrubber  
 WC - Water Curtain  
 WT - Water Trough  
 PA - Paint Arestor  
 BF - Baffle Filter  
 WSN - Water Spray Nozzle  
 AF - Air Filter  
 AI - Ammonia Injection  
 LI - Lime Injection  
 ESP - Electrostatic Precipitator  
 DM - Demister  
 PB - Polyballs

TABLE 16. OUTLIER ACTION REPORT BY DEVICE AND SUBSTANCE.

Device ID	EER Run ID	Substance	Emission Factor	Unit	Calculation	Process	Method	Comment
101	101CIR2	Manganese	2.99E-02	lbs/ton	X	X	X	
101	101CIR1	Nickel	1.61E-03	lbs/ton	X	X	X	
101	101CIR2	Zinc	2.37E-04	lbs/ton	X	X	X	
102	102CIR2	Acenaphthene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Acenaphthylene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Anthracene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Benzo(a)anthracene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Benzo(a)pyrene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Benzo(b)fluoranthene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Benzo(g,h,i)perylene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Benzo(k)fluoranthene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Chrysene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	dibenz(a,h)anthracene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Fluoranthene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Fluorene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Indeno(1,2,3-cd)pyrene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Phenanthrene	6.21E-03	lbs/Mgal	X	X	O	
102	102CIR2	Pyrene	6.21E-03	lbs/Mgal	X	X	O	
103	103CIS1	Anthracene	4.14E-10	lbs/ton production	X	X	X	
103	103CIS1	Benzo(a)anthracene	3.70E-10	lbs/ton production	X	X	O	
103	103CIS1	Benzo(a)pyrene	3.70E-10	lbs/ton production	X	X	O	
103	103CIS1	Benzo(b)fluoranthene	3.70E-10	lbs/ton production	X	X	O	
103	103CIS1	Benzo(g,h,i)perylene	3.70E-10	lbs/ton production	X	X	O	
103	103CIS1	Benzo(k)fluoranthene	3.70E-10	lbs/ton production	X	X	O	
103	103CIR1	Chromium	2.33E-06	lbs/ton production	X	X	X	
103	103CIS1	Chrysene	3.70E-10	lbs/ton production	X	X	O	
103	103CIS1	dibenz(a,h)anthracene	3.70E-10	lbs/ton production	X	X	O	
103	103CIS1	Indeno(1,2,3-cd)pyrene	3.70E-10	lbs/ton production	X	X	O	
104	104CIS1	Cadmium	7.99E-06	lbs/ton production	X	X	X	
106	106CIR1	Benzo(a)pyrene	3.96E-09	lbs/ton production	X	X	X	
106	106CIS2	Cadmium	1.89E-06	lbs/ton production	X	X	X	
107	107CIR1	Acenaphthylene	3.23E-05	lbs/MMcf	X	X	X	
107	107CIR1	Pyrene	1.16E-05	lbs/MMcf	X	X	X	
111	111CIR1	Acetaldehyde	5.10E-03	lbs/Mgal	X	X	X	
112	112CIR1	Benzo(a)anthracene	2.45E-04	lbs/Mgal	X	X	X	
112	112CIR3	Fluorene	2.10E-04	lbs/Mgal	X	X	X	
112	112CIR1	Indeno(1,2,3-cd)pyrene	7.77E-06	lbs/Mgal	X	X	X	
113	113CIR1	Benzo(k)fluoranthene	6.92E-05	lbs/Mgal	X	X	X	
122	122CIR6	Benzo(b)fluoranthene	9.29E-04	lbs/MMcf	X	X	X	
122	122CIR8	Benzo(g,h,i)perylene	2.58E-04	lbs/MMcf	X	X	X	
122	122CIR8	Indeno(1,2,3-cd)pyrene	2.95E-04	lbs/MMcf	X	X	X	
127	127CIR2	Formaldehyde	6.56E+01	lbs/MMcf	X	X	X	
128	128CIR3	Benzene	2.25E-03	lbs/Mgal	X	X	X	
128	128CIR5	Selenium	4.49E-02	lbs/Mgal	X	X	X	
128	128CIR4	Thallium	7.87E-04	lbs/Mgal	X	X	X	

TABLE 16. OUTLIER ACTION REPORT BY DEVICE AND SUBSTANCE.

Device ID	EER Run ID	Substance	Emission Factor	Unit	Calculation	Process	Method	Comment
131	131CIR5	Phenanthrene	2.04E-03	lbs/Mgal	X	X	X	
132	132CIR2	Acenaphthylene	1.61E-04	lbs/MMcf	X	X	X	
133	133CIR2	Naphthalene	4.06E-01	lbs/MMcf	X	X	X	
136	136CIR3	4F Total	9.61E-08	lbs/Mgal	X	X	X	
136	136CIR3	5D Total	2.04E-08	lbs/Mgal	X	X	X	
136	136CIR3	5F Total	1.32E-07	lbs/Mgal	X	X	X	
136	136CIR3	6D Total	2.22E-08	lbs/Mgal	X	X	X	
136	136CIR3	Acenaphthylene	2.22E-05	lbs/Mgal	X	X	X	
136	136CIR2	Nickel	1.42E-01	lbs/Mgal	X	X	X	
136	136CIR2	Zinc	1.42E-01	lbs/Mgal	X	X	X	
138	138CIR1	Manganese	5.47E-01	lbs/Mgal	X	X	X	
139	139CIR9	4F 2378	6.30E-09	lbs/ton	X	X	X	
139	139CIR9	5D Total	1.26E-07	lbs/ton	X	X	X	
139	139CIR1	Arsenic	1.79E-05	lbs/ton	X	X	X	
139	139CIR3	Arsenic	4.29E-05	lbs/ton	X	X	X	
139	139CIR1	Cadmium	2.23E-04	lbs/ton	X	X	X	
139	139CIR3	Manganese	7.29E-04	lbs/ton	X	X	X	
140	140CIR4	Formaldehyde	7.31E-02	lbs/Mgal	X	X	X	
141	141CIR1	Formaldehyde	1.27E+01	lbs/MMcf	X	X	O	
142	142CIR3	dibenz(a,h)anthracene	2.68E-06	lbs/Mgal	X	X	X	
142	142CIR6	Manganese	1.22E-02	lbs/Mgal	X	X	X	
143	143CIR5	Benzo(a)anthracene	3.97E-08	lbs/Mgal	X	X	X	
143	143CIR5	Benzo(a)pyrene	2.67E-06	lbs/Mgal	X	X	X	
143	143CIR5	Benzo(g,h,i)perylene	2.75E-06	lbs/Mgal	X	X	X	
143	143CIR5	dibenz(a,h)anthracene	2.83E-06	lbs/Mgal	X	X	X	
143	143CIR5	Formaldehyde	1.48E-04	lbs/Mgal	X	X	X	
143	143CIR5	Indeno(1,2,3-cd)pyrene	1.18E-06	lbs/Mgal	X	X	X	
143	143CIR3	Lead	2.05E+05	lbs/Mgal	C	X	X	
143	143CIR5	Perylene	2.68E-06	lbs/Mgal	X	X	X	
146	146CIR3	2-Chloronaphthalene	3.50E-05	lbs/Mgal	X	X	X	
146	146CIR3	4F 2378	2.66E-07	lbs/Mgal	X	X	X	
146	146CIR3	5D 12378	6.57E-09	lbs/Mgal	X	X	X	
146	146CIR3	5F 12378	2.48E-08	lbs/Mgal	X	X	X	
146	146CIR3	5F 23478	4.48E-08	lbs/Mgal	X	X	X	
146	146CIR3	6D 123478	5.68E-09	lbs/Mgal	X	X	X	
146	146CIR3	6D 123678	8.07E-09	lbs/Mgal	X	X	X	
146	146CIR3	6D 123789	1.34E-08	lbs/Mgal	X	X	X	
146	146CIR3	6F 123478	5.68E-08	lbs/Mgal	X	X	X	
146	146CIR3	6F 123678	1.79E-08	lbs/Mgal	X	X	X	
146	146CIR3	6F 234678	2.48E-08	lbs/Mgal	X	X	X	
146	146CIR3	7D 1234678	3.29E-08	lbs/Mgal	X	X	X	
146	146CIR3	7F 1234678	5.68E-08	lbs/Mgal	X	X	X	
146	146CIR3	Benzo(a)anthracene	1.12E-05	lbs/Mgal	X	X	X	
146	146CIR3	Benzo(g,h,i)perylene	5.57E-06	lbs/Mgal	X	X	X	

Number collected

TABLE 16. OUTLIER ACTION REPORT BY DEVICE AND SUBSTANCE.

Device ID	EER Run ID	Substance	Emission Factor	Unit	Calculation	Process	Method	Comment
146	146CIR6	Cadmium	4.29E-05	lbs/Mgal	X	X	X	
146	146CIR4	Chromium	4.81E-03	lbs/Mgal	X	X	X	
146	146CIR3	Chrysene	2.92E-05	lbs/Mgal	X	X	X	
146	146CIR3	dibenz(a,h)anthracene	5.09E-06	lbs/Mgal	X	X	X	
146	146CIR1	Fluorene	1.67E-04	lbs/Mgal	X	X	X	
146	146CIR3	Indeno(1,2,3-cd)pyrene	5.12E-06	lbs/Mgal	X	X	X	
146	146CIR4	Lead	5.48E-04	lbs/Mgal	X	X	X	
151	151CIR3	Nickel	7.68E-03	lbs/ton production	X	X	X	
152	152CIR7	Benzen	2.64E-02	lbs/ton production	X	X	X	
153	153CIR1	Beryllium	4.00E-07	lbs/ton production	C	X	X	
153	153CIR3	Nickel	3.20E-06	lbs/ton production	X	X	X	
153	153CIR1	Nickel	2.08E-05	lbs/ton production	X	X	X	
154	154CIR1	Manganese	4.00E-05	lbs/ton production	X	X	X	
155	155CIR3	Cadmium	5.30E-03	lbs/ton production	X	X	X	
156	156CIS2	Acrolein	2.06E-01	lbs/MMcf	X	X	X	
157	157CIT4	Acenaphthylene	1.68E-06	lbs/ton production	X	X	X	
157	157CIT6	Anthracene	2.77E-07	lbs/ton production	X	X	X	
157	157CIT4	Benzo(a)anthracene	3.32E-07	lbs/ton production	X	X	X	
157	157CIT4	Chrysene	1.02E-06	lbs/ton production	X	X	X	
157	157CIS1	Copper	2.33E-04	lbs/ton production	X	X	X	
157	157CIT4	Fluoranthene	5.94E-06	lbs/ton production	X	X	X	
157	157CIS8	Manganese	4.43E-04	lbs/ton production	X	X	X	
158	158CIR8	Chromium	1.63E-04	lbs/ton production	X	X	X	
158	158CIR3	Selenium	6.43E-05	lbs/ton production	X	X	X	
159	159CIR6	Lead	1.42E-05	lbs/ton production	X	X	X	
161	161CIR3	2-Chloronaphthalene	1.78E-04	lbs/Mgal	X	X	X	
161	161CIR3	Acenaphthene	1.30E-04	lbs/Mgal	X	X	O	
161	161CIR3	Acenaphthylene	3.34E-04	lbs/Mgal	X	X	O	
161	161CIR3	Anthracene	2.69E-04	lbs/Mgal	X	X	O	
161	161CIR3	Benzo(a)anthracene	9.93E-05	lbs/Mgal	X	X	O	
161	161CIR3	Benzo(a)pyrene	7.11E-04	lbs/Mgal	X	X	O	
161	161CIR3	Benzo(b)fluoranthene	4.24E-04	lbs/Mgal	X	X	O	
161	161CIR3	Benzo(e)pyrene	5.33E-04	lbs/Mgal	X	X	O	
161	161CIR3	Benzo(g,h,i)perylene	9.93E-04	lbs/Mgal	X	X	O	
161	161CIR3	Benzo(k)fluoranthene	6.69E-04	lbs/Mgal	X	X	O	
161	161CIR3	dibenz(a,h)anthracene	1.44E-03	lbs/Mgal	X	X	O	
161	161CIR3	Fluorene	2.90E-04	lbs/Mgal	X	X	O	
161	161CIR3	Indeno(1,2,3-cd)pyrene	1.15E-03	lbs/Mgal	X	X	O	
161	161CIR3	Perylene	1.26E-03	lbs/Mgal	X	X	O	
162	162CIR9	Aluminum	6.41E+00	lbs/ton production	X	X	X	
162	162CIR9	Arsenic	1.28E-03	lbs/ton production	X	X	X	
164	164CIR6	Benzo(b)fluoranthene	1.18E-08	lbs/ton production	X	X	X	
164	164CIR6	Benzo(k)fluoranthene	2.63E-09	lbs/ton production	X	X	X	
165	165CIR3	Acenaphthylene	1.06E-05	lbs/ton production	X	X	X	
165	165CIR2	Ethylbenzene	3.34E-04	lbs/ton production	C	X	X	

TABLE 16. OUTLIER ACTION REPORT BY DEVICE AND SUBSTANCE.

Device ID	EER Run ID	Substance	Emission Factor	Unit	Calculation	Process	Method	Comment
165	165CIR3	Fluoranthene	3.60E-06	lbs/ton production	X	X	X	
165	165CIR3	Naphthalene	6.46E-05	lbs/ton production	X	X	X	
165	165CIR3	Pyrene	7.04E-06	lbs/ton production	X	X	X	
166	166CIR3	Manganese	3.74E-02	lbs/ton production	X	X	X	
177	177CIR2	Anthracene	1.53E-04	lbs/MMcf	X	X	X	
177	177CIR3	Benzo(b)fluoranthene	8.93E-06	lbs/MMcf	X	X	X	
178	178CIR3	Anthracene	4.12E-07	lbs/MMcf	X	X	X	
179	179CIR1	Formaldehyde	2.77E-01	lbs/Mgal	X	X	X	
181	181CIR3	Acenaphthene	1.02E-03	lbs/Mgal	X	O	X	
181	181CIR3	Benzo(a)anthracene	1.32E-04	lbs/Mgal	X	O	X	
181	181CIR3	Chrysene	2.51E-05	lbs/Mgal	X	O	X	
181	181CIR3	Fluorene	4.37E-03	lbs/Mgal	X	O	X	
181	181CIR3	Naphthalene	3.63E-02	lbs/Mgal	X	O	X	
181	181CIR3	Phenanthrene	1.02E-02	lbs/Mgal	X	O	X	
410	410CIR5	Acenaphthene	2.04E-02	lbs/Mgal	X	X	X	
411	411CIR1	Acenaphthene	1.81E-05	lbs/MMcf	X	X	X	
411	411CIR1	Acenaphthylene	1.72E-04	lbs/MMcf	X	X	X	
411	411CIR1	Benzo(g,h,i)perylene	9.55E-07	lbs/MMcf	X	X	X	
411	411CIR1	Fluorene	1.69E-03	lbs/MMcf	X	X	X	
411	411CIR1	Naphthalene	6.18E-03	lbs/MMcf	X	X	X	
414	414CIR2	Acenaphthene	3.59E-03	lbs/Mgal	X	X	X	
415	415CIR1	Acenaphthene	3.31E-05	lbs/Mgal	X	X	X	
422	422CIR2	Indeno(1,2,3-cd)pyrene	1.10E-05	lbs/Mgal	X	X	X	
424	424CIR1	Pyrene	4.82E-06	lbs/ton production	X	X	X	
425	425CIR9	Mercury	1.12E-04	lbs/ton coke	X	X	X	
425	425CIR9	Nickel	1.76E-04	lbs/ton coke	X	X	X	
426	426CIR5	Anthracene	9.52E-06	lbs/ton production	X	X	X	
426	426CIR5	Benzo(a)anthracene	6.14E-07	lbs/ton production	X	X	X	
426	426CIR5	Chrysene	4.76E-06	lbs/ton production	X	X	X	
427	427CIS8	4F 2378	7.29E-13	lbs/ton production	X	X	X	
427	427CIS6	Benzo(b)fluoranthene	4.86E-08	lbs/ton production	X	X	X	
428	428CIR1	Benzo(k)fluoranthene	1.87E-05	lbs/Mgal	X	X	X	
431	431CIR4	Fluoranthene	9.99E-08	lbs/ton	X	X	X	
432	432CIR3	Chromium (Hex)	2.57E-02	mg/amp-hr	X	X	X	
433	433CIR6	Acenaphthene	5.11E-07	lbs/drum	X	X	X	
433	433CIR6	Acenaphthylene	1.15E-07	lbs/drum	X	X	X	
433	433CIR6	Anthracene	4.31E-07	lbs/drum	X	X	X	
433	433CIR6	Fluorene	1.09E-06	lbs/drum	X	X	X	
433	433CIS2	Zinc	1.06E-03	lbs/drum	X	X	X	
434	434CIR1	Acenaphthylene	1.51E-05	lbs/Mgal	X	X	X	
434	434CIS5	Barium	2.09E-02	lbs/Mgal	X	X	X	
434	434CIR6	Chromium (Hex)	1.41E-04	lbs/Mgal	X	X	X	
434	434CIS6	Manganese	1.62E-02	lbs/Mgal	X	X	X	
601	601CIR2	Cadmium	4.91E-05	lbs/ton	X	X	X	
601	601CIR2	Manganese	6.55E-04	lbs/ton	X	X	X	

TABLE 16. OUTLIER ACTION REPORT BY DEVICE AND SUBSTANCE.

Device ID	EER Run ID	Substance	Emission Factor	Unit	Calculation	Process	Method	Comment
601	601CIR7	Selenium	2.08E-06	lbs/ton	X	X	X	
606	606CIR9	Arsenic	5.58E-04	lbs/Mgal	X	X	X	
606	606CIR8	Arsenic	2.66E-03	lbs/Mgal	X	X	X	
606	606CIR8	Cadmium	2.88E-03	lbs/Mgal	X	X	X	
606	606CIS5	Formaldehyde	5.22E-04	lbs/Mgal	C	X	X	
630	630CIS2	Benzo(a)anthracene	1.30E-05	lbs/Mgal	X	X	X	
630	630CIS2	Benzo(b+k)fluoranthene	6.30E-06	lbs/Mgal	X	X	X	
630	630CIS2	Fluoranthene	1.81E-05	lbs/Mgal	X	X	X	
633	633CIS3	Lead	1.93E-03	lbs/Mgal	X	X	X	
634	634CIS3	Acenaphthene	1.56E-05	lbs/Mgal	X	X	X	
634	634CIR5	Nickel	2.21E-03	lbs/Mgal	X	X	X	
638	638CIR4	Acenaphthene	1.47E-05	lbs/Mgal	X	X	X	
640	640CIS2	Fluorene	1.43E-06	lbs/ton	X	X	X	
640	640CIS2	Pyrene	4.65E-06	lbs/ton	X	X	X	
641	641CIS4	Lead	1.57E-05	lbs/ton	X	X	X	

X - Checked.

O - Action Required.

C - Emission Factor Corrected.

TABLE 17. OUTLIER ACTION REPORT BY MAJOR GROUP AND SUBSTANCE.

Major Group	Substance	EER Run ID	Emission Factor	Unit	Calculation Method	Process	Comment
Asphalt Prod., Diesel	Anthracene	159C1R1	1.07E-06	lbs/ton production	X	X	
Asphalt Prod., Diesel	Anthracene	159C1R2	4.49E-06	lbs/ton production	X	X	
Asphalt Prod., Diesel	Beryllium	423C1R1	4.01E-06	lbs/ton production	X	X	
Asphalt Prod., Diesel	Cadmium	105C1R9	6.65E-06	lbs/ton production	O	X	Blank standard for this analyte. Not included in analysis.
Asphalt Prod., Diesel	Cadmium	105C1R8	8.13E-06	lbs/ton production	O	X	Blank standard for this analyte. Not included in analysis.
Asphalt Prod., Diesel	Cadmium	423C1R1	4.41E-05	lbs/ton production	X	X	
Asphalt Prod., Diesel	Chromium	423C1R1	8.42E-05	lbs/ton production	X	X	
Asphalt Prod., Diesel	Copper	105C1R8	2.98E-06	lbs/ton production	O	X	Blank standard for this analyte. Not included in analysis.
Asphalt Prod., Diesel	Copper	423C1R1	1.32E-04	lbs/ton production	X	X	
Asphalt Prod., Diesel	Lead	423C1R1	2.19E-03	lbs/ton production	X	X	
Asphalt Prod., Diesel	Manganese	423C1R1	1.64E-03	lbs/ton production	X	X	
Asphalt Prod., Diesel	Mercury	159C1R5	6.36E-06	lbs/ton production	X	X	
Asphalt Prod., Diesel	Nickel	423C1R1	3.81E-04	lbs/ton production	X	X	
Asphalt Prod., Diesel	Phenanthrene	159C1R2	6.14E-06	lbs/ton production	X	X	
Asphalt Prod., Diesel	Phenanthrene	159C1R1	1.64E-05	lbs/ton production	X	X	
Asphalt Prod., Diesel	Zinc	423C1R1	4.62E-03	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Arsenic	623C1R2	1.45E-05	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Arsenic	623C1R1	7.00E-05	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(a)anthracene	623C1R1	1.12E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(a)anthracene	623C1R2	1.19E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(a)pyrene	623C1R1	1.12E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(a)pyrene	623C1R2	1.19E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(b)fluoranthene	623C1R1	1.12E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(b)fluoranthene	623C1R2	1.19E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(g,h,i)perylene	623C1R1	1.12E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(g,h,i)perylene	623C1R2	1.19E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(k)fluoranthene	623C1R1	1.12E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Benzo(k)fluoranthene	623C1R2	1.19E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Cadmium	165C1R6	2.00E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Cadmium	623C1R2	2.89E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Cadmium	623C1R1	1.01E-05	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Chromium	623C1R1	3.89E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Chromium	623C1R2	5.81E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Chromium	624C1R1	7.71E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Chromium (Hex)	623C1R1	4.21E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Chromium (Hex)	623C1R2	9.29E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Chrysene	623C1R1	1.12E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Chrysene	623C1R2	1.19E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Copper	623C1R1	1.71E-05	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	dibenz(a,h)anthracene	623C1R1	1.12E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	dibenz(a,h)anthracene	623C1R2	1.19E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Fluoranthene	623C1R1	1.12E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Fluoranthene	623C1R2	1.19E-06	lbs/ton production	X	X	
Asphalt Prod., Natural Gas	Indeno(1,2,3-cd)pyrene	623C1R1	1.12E-06	lbs/ton production	X	X	

TABLE 17. OUTLIER ACTION REPORT BY MAJOR GROUP AND SUBSTANCE.

Major Group	Substance	EER Run ID	Emission Factor	Unit	Calculation	Method	Process	Comment
Asphalt Prod., Natural Gas	Indeno(1,2,3-cd)pyrene	623CIR2	1.19E-06	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Lead	104CIS1	2.87E-06	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Lead	623CIR2	7.27E-06	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Lead	165CIR5	8.29E-06	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Lead	165CIR4	2.10E-05	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Lead	623CIR1	1.07E-04	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Manganese	623CIR1	1.64E-04	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Manganese	623CIR2	2.11E-04	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Nickel	623CIR1	4.02E-05	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Phenanthrene	165CIR3	7.75E-06	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Pyrene	623CIR1	1.12E-06	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Pyrene	623CIR2	1.19E-06	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Selenium	623CIR2	1.45E-05	lbs/ton production	X	X	X	
Asphalt Prod., Natural Gas	Selenium	623CIR1	1.29E-04	lbs/ton production	X	X	X	
Asphalt Prod., Oil	Arsenic	158CIR3	3.01E-05	lbs/ton production	X	X	O	
Asphalt Prod., Oil	Lead	158CIR3	4.36E-05	lbs/ton production	X	X	O	
Asphalt Prod., Oil	Zinc	158CIR6	6.06E-04	lbs/ton production	X	X	O	
Boiler, Distillate	Acenaphthylene	181CIR3	5.31E-04	lbs/Mgal	X	X	O	
Boiler, Distillate	Chrysene	161CIR3	1.01E-04	lbs/Mgal	X	X	X	
Boiler, Distillate	dtbenz(a,h)anthracene	161CIR1	2.47E-05	lbs/Mgal	X	X	X	
Boiler, Distillate	dtbenz(a,h)anthracene	161CIR2	2.72E-05	lbs/Mgal	X	X	X	
Boiler, Distillate	Fluoranthene	181CIR3	2.04E-04	lbs/Mgal	X	X	O	Boiler shutdown and startup may be the cause of relatively high PAH results for Run #3. Not included in analysis.
Boiler, Distillate	Indeno(1,2,3-cd)pyrene	161CIR2	2.18E-05	lbs/Mgal	X	X	X	
Boiler, Distillate	Pyrene	181CIR3	4.01E-04	lbs/Mgal	X	X	O	Boiler shutdown and startup may be the cause of relatively high PAH results for Run #3. Not included in analysis.
Boiler, Fuel Oil	Acetaldehyde	633CIR9	1.02E-02	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Benzo(b+k)fluoranthene	604CIR1	4.15E-06	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Benzo(e)pyrene	143CIR5	2.66E-06	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Cadmium	604CIR5	1.70E-06	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Cadmium	143CIR3	4.57E-03	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Cadmium	143CIR2	1.20E-02	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Cadmium	5.02E-02	lbs/Mgal	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Chromium	604CIR3	3.75E-06	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Chromium	604CIR1	5.93E-06	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Chromium	604CIR2	1.80E-05	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Perylene	142CIR3	2.20E-07	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Total Xylene	128CIR3	2.42E-03	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Total Xylene	128CIR2	8.75E-03	lbs/Mgal	X	X	X	

TABLE 17. OUTLIER ACTION REPORT BY MAJOR GROUP AND SUBSTANCE.

Major Group	Substance	EER Run ID	Emission Factor	Unit	Calculation	Method	Process	Comment
Boiler, Fuel Oil	Zinc	128C1R6	2.39E-01	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Zinc	128C1R4	3.30E-01	lbs/Mgal	X	X	X	
Boiler, Fuel Oil	Zinc	128C1R5	1.09E+00	lbs/Mgal	X	X	X	
Coating, Polyurethane	Chromium (Hex)	618C2R2	1.48E-04	lbs/gal paint	X	X	X	
Coating, Polyurethane	Chromium (Hex)	618C2R1	3.04E-04	lbs/gal paint	X	X	X	
Cement Kiln, Coal	4D Total	426C1R5	2.63E-09	lbs/ton production	X	X	X	
Cement Kiln, Coal	4D Total	426C1R6	4.33E-09	lbs/ton production	X	X	X	
Cement Kiln, Coal	4D Total	426C1R4	6.14E-09	lbs/ton production	X	X	X	
Cement Kiln, Coal	6D Total	157C1T4	7.22E-09	lbs/ton production	X	X	X	
Cement Kiln, Coal	Acenaphthylene	427C1S5	5.81E-06	lbs/ton production	X	X	X	
Cement Kiln, Coal	157C1T4	157C1T4	3.90E-07	lbs/ton production	X	X	X	
Cement Kiln, Coal	Benzo(b)fluoranthene	426C1R5	6.57E-07	lbs/ton production	X	X	X	
Cement Kiln, Coal	Benzo(e)pyrene	426C1R5	4.60E-07	lbs/ton production	X	X	X	
Cement Kiln, Coal	424C1R3	424C1R3	1.48E-08	lbs/ton production	X	X	X	
Cement Kiln, Coal	Benzo(k)fluoranthene	424C1R2	2.09E-08	lbs/ton production	X	X	X	
Cement Kiln, Coal	Benzo(k)fluoranthene	424C1R1	3.61E-08	lbs/ton production	X	X	X	
Cement Kiln, Coal	Chromium	157C1R7	1.88E-04	lbs/ton production	X	X	X	
Cement Kiln, Coal	Copper	157C1S6	4.07E-05	lbs/ton production	X	X	X	
Cement Kiln, Coal	Copper	157C1S8	4.42E-05	lbs/ton production	X	X	X	
Cement Kiln, Coal	Formaldehyde	424C1R1	1.42E-04	lbs/ton production	X	X	X	
Cement Kiln, Coal	Indeno(1,2,3-cd)pyrene	157C1T4	1.33E-07	lbs/ton production	X	X	X	
Cement Kiln, Coal	Lead	424C1R1	2.32E-04	lbs/ton production	X	X	X	
Cement Kiln, Coal	Lead	424C1R2	3.06E-04	lbs/ton production	X	X	X	
Cement Kiln, Coal	Manganese	424C1R2	3.00E-03	lbs/ton production	X	X	X	
Cement Kiln, Coal	Naphthalene	157C1T5	3.87E-05	lbs/ton production	X	X	X	
Cement Kiln, Coal	Naphthalene	427C1S5	7.37E-05	lbs/ton production	X	X	X	
Cement Kiln, Coal	Naphthalene	157C1T4	1.87E-04	lbs/ton production	X	X	X	
Cement Kiln, Coal	Phenanthrene	427C1S5	1.64E-05	lbs/ton production	X	X	X	
Cement Kiln, Coal	Zinc	424C1R2	3.21E-03	lbs/ton production	X	X	X	
Cement Kiln, Coal	Zinc	424C1R3	3.26E-03	lbs/ton production	X	X	X	
Coating, Powder	Chromium	602C2R1	1.86E-03	lbs/lbs powder	X	X	X	
Coating, Powder	Chromium	602C4R1	1.42E-01	lbs/lbs powder	X	X	X	
Coating, Powder	Chromium	602C3R1	3.75E-01	lbs/lbs powder	X	X	X	
Fluidized Bed Combustion, Coal	4D 2378	431C1R2	3.47E-09	lbs/ton	X	O	X	Low recoveries of internal particulates from treatment units. No CHN data available.
Fluidized Bed Combustion, Coal	4D Total	431C1R2	3.47E-09	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	4D Total	139C1R7	5.86E-08	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	4D Total	139C1R8	1.06E-07	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	4D Total	139C1R9	4.85E-07	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	4F Total	139C1R7	1.05E-07	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	4F Total	139C1R8	1.44E-07	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	4F Total	139C1R9	6.78E-07	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	5D 12378	431C1R1	1.34E-08	lbs/ton	X	O	X	
Fluidized Bed Combustion, Coal	5D 12378	431C1R2	3.12E-08	lbs/ton	X	O	X	
Fluidized Bed Combustion, Coal	5F 12378	431C1R2	8.81E-09	lbs/ton	X	X	X	

TABLE 17. OUTLIER ACTION REPORT BY MAJOR GROUP AND SUBSTANCE.

Major Group	Substance	BER Run ID	Emission Factor	Unit	Calculation	Method	Process	Comment
Fluidized Bed Combustion, Coal	5F 23478	139C1R9	7.27E-09	lbs/ton	X	X	O	Source burns agricultural waste. Major group revised.
Fluidized Bed Combustion, Coal	5F 23478	431C1R2	8.81E-09	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	5F Total	139C1R8	3.83E-08	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	5F Total	139C1R7	3.99E-08	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	5F Total	139C1R9	1.79E-07	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6D 123478	431C1R1	1.06E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6D 123478	431C1R2	2.51E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6D 123678	431C1R1	1.06E-08	lbs/ton	X	O	X	Low recoveries of internal standard due to sample matrix. Not included in analysis.
Fluidized Bed Combustion, Coal	6D 123678	431C1R2	2.51E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6D 123789	431C1R1	1.06E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6D 123789	431C1R2	2.51E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6D Total	139C1R9	4.07E-08	lbs/ton	X	X	O	Source burns agricultural waste. Major group revised.
Fluidized Bed Combustion, Coal	6F 123478	431C1R1	8.48E-09	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6F 123478	431C1R2	1.09E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6F 123678	431C1R1	8.48E-09	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6F 123678	431C1R2	1.09E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6F 123789	431C1R1	8.48E-09	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6F 123789	431C1R2	1.09E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6F 234678	101C1R9	5.49E-09	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6F 234678	431C1R1	8.48E-09	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	6F 234678	431C1R2	1.09E-08	lbs/ton	X	X	X	Low recoveries of internal standard due to sample matrix. Not included in analysis.
Fluidized Bed Combustion, Coal	7D 1234678	431C1R2	2.45E-08	lbs/ton	X	O	X	
Fluidized Bed Combustion, Coal	7F 1234789	431C1R1	1.20E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	7F 1234789	431C1R2	2.38E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	7F Total	101C1S4	3.29E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	7F Total	101C1R9	5.08E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	8F	101C1S4	1.99E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	8F	431C1R1	4.45E-08	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	8F	431C1R2	1.15E-07	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	Acenaphthylene	139C1R8	6.49E-05	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	Acenaphthylene	139C1R7	2.04E-04	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	Arsenic	603C1R9	1.47E-04	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	Chromium	431C1S1	2.58E-04	lbs/ton	X	X	X	Source burns agricultural waste. Major group revised.
Fluidized Bed Combustion, Coal	HCl	139C1R4	1.13E-01	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	Manganese	101C1R1	2.21E-04	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	Phenanthrene	139C1R9	4.73E-05	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	Phenanthrene	139C1R8	1.39E-04	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	Phenanthrene	139C1R7	1.53E-04	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	Pyrene	139C1R9	3.29E-05	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	Pyrene	139C1R8	5.13E-05	lbs/ton	X	X	O	
Fluidized Bed Combustion, Coal	Pyrene	139C1R7	6.36E-05	lbs/ton	X	X	O	

TABLE 17. OUTLIER ACTION REPORT BY MAJOR GROUP AND SUBSTANCE.

Major Group	Substance	BER Run ID	Emission Factor	Unit	Calculation	Method	Process	Comment
Fluidized Bed Combustion, Coal	Zinc	603CIR1	2.78E-03	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coal	Zinc	603CIR9	4.62E-03	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coke	Anthracene	641CIR1	3.82E-07	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coke	Benzo(a)anthracene	640CIS3	3.94E-07	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coke	Benzo(b+k)fluoranthene	641CIR3	3.25E-07	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coke	Benzo(b+k)fluoranthene	641CIR1	6.95E-07	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coke	Chromium	641CIR8	1.79E-05	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coke	Copper	640CIR5	1.67E-04	lbs/ton	X	X	X	
Fluidized Bed Combustion, Coke	dibenz(a,h)anthracene	641CIR1	5.73E-07	lbs/ton	X	X	X	
Heater, Natural/Ref. Gas	Benzo(a)anthracene	411CIR1	1.67E-05	lbs/MMcf	X	X	X	
Heater, Natural/Ref. Gas	Benzo(b)fluoranthene	411CIR2	4.19E-06	lbs/MMcf	X	X	X	
Heater, Natural/Ref. Gas	Benzo(k)fluoranthene	411CIR3	3.18E-06	lbs/MMcf	X	X	X	
Heater, Natural/Ref. Gas	Fluoranthene	411CIR1	3.82E-05	lbs/MMcf	X	X	X	
Heater, Natural/Ref. Gas	Formaldehyde	411CIR4	8.89E-02	lbs/MMcf	X	X	X	
Heater, Natural/Ref. Gas	Phenanthrene	411CIR1	4.30E-04	lbs/MMcf	X	X	X	
Heater, Natural/Ref. Gas	Pyrene	411CIR1	2.62E-05	lbs/MMcf	X	X	X	
Heater, Natural/Ref. Gas	Toluene	107CIR7	7.47E-02	lbs/MMcf	X	X	X	
Internal Combustion, Diesel	Acenaphthylene	410CIR5	6.28E-03	lbs/Mgal	X	X	X	
Internal Combustion, Diesel	Acenaphthylene	410CIR4	1.14E-02	lbs/Mgal	X	X	X	
Internal Combustion, Diesel	Acenaphthylene	410CIR6	1.47E-02	lbs/Mgal	X	X	X	
Internal Combustion, Diesel	Acrolein	112CIR1	3.16E-02	lbs/Mgal	X	X	X	
Internal Combustion, Diesel	Anthracene	410CIR6	2.31E-03	lbs/Mgal	X	X	X	
Internal Combustion, Diesel	Anthracene	410CIR4	2.56E-03	lbs/Mgal	X	X	X	
Internal Combustion, Diesel	Formaldehyde	637CIR5	3.35E-01	lbs/Mgal	X	X	X	
Internal Combustion, Natural Gas	Anthracene	127CIR8	6.67E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Benzene	135CIR3	1.38E-02	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Benzene	135CIR2	1.85E-02	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Benzo(a)pyrene	127CIR8	1.53E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Benzo(b)fluoranthene	156CIR9	2.45E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Benzo(b)fluoranthene	156CIR8	3.29E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Benzo(k)fluoranthene	122CIR8	1.07E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Benzo(k)fluoranthene	127CIR8	4.44E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Benzo(k)fluoranthene	127CIR7	4.69E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Formaldehyde	169CIR3	4.66E-04	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Formaldehyde	169CIR2	4.89E-04	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Formaldehyde	169CIR1	5.66E-04	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Formaldehyde	168CIR1	7.59E-04	lbs/MMcf	C	X	X	
Internal Combustion, Natural Gas	Formaldehyde	168CIR2	8.81E-04	lbs/MMcf	C	X	X	
Internal Combustion, Natural Gas	Formaldehyde	170CIR1	9.12E-04	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Formaldehyde	170CIR2	1.09E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Formaldehyde	170CIR3	1.28E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Formaldehyde	168CIR3	1.84E-03	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Formaldehyde	123CIR4	1.06E-02	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	o-xylene	118CIR4	5.37E-01	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	o-xylene	118CIR5	5.91E-01	lbs/MMcf	X	X	X	

TABLE 17. OUTLIER ACTION REPORT BY MAJOR GROUP AND SUBSTANCE.

Major Group	Substance	EER Run ID	Emission Factor	Unit	Calculation	Method	Process	Comment
Internal Combustion, Natural Gas	Phenanthrene	156CIR8	1.26E-02	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Phenanthrene	156CIR7	2.83E-02	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Phenanthrene	156CIR9	3.16E-02	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Propylene	175CIR9	2.87E-01	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Propylene	175CIR8	3.79E-01	lbs/MMcf	X	X	X	
Internal Combustion, Natural Gas	Propylene	175CIR7	4.39E-01	lbs/MMcf	X	X	X	
Furnace, Aluminum	Chromium	155CIR5	5.36E-04	lbs/ton production	X	X	X	
Furnace, Aluminum	Chromium	155CIR4	6.87E-04	lbs/ton production	X	X	X	
Furnace, Aluminum	Copper	155CIR2	5.81E-03	lbs/ton production	X	X	X	
Furnace, Aluminum	Lead	155CIR3	5.22E-03	lbs/ton production	X	X	X	
Furnace, Aluminum	Lead	155CIR1	1.44E-02	lbs/ton production	X	X	X	
Furnace, Aluminum	Lead	155CIR2	1.69E-02	lbs/ton production	X	X	X	
Furnace, Aluminum	Manganese	155CIR2	8.58E-04	lbs/ton production	X	X	X	
Furnace, Aluminum	Manganese	155CIR1	2.55E-03	lbs/ton production	X	X	X	
Furnace, Aluminum	Zinc	166CIR3	9.60E-04	lbs/ton production	X	X	X	
Furnace, Aluminum	Zinc	155CIR1	2.06E-03	lbs/ton production	X	X	X	
Furnace, Aluminum	Zinc	155CIR3	7.68E-03	lbs/ton production	X	X	X	
Furnace, Aluminum	Zinc	155CIR2	1.81E-02	lbs/ton production	X	X	X	
PM, Reactor	Ethylbenzene	626CIR1	6.90E-07	lbs/lbs production	X	X	X	
PM, Reactor	Styrene	626CIR1	2.48E-05	lbs/lbs production	X	X	X	
Steam Generator, Crude Oil	Cadmium	111CIR5	5.45E-04	lbs/Mgal	X	X	X	
Steam Generator, Crude Oil	Fluoranthene	111CIS2	5.23E-05	lbs/Mgal	X	X	X	
Steam Generator, Crude Oil	Phenanthrene	111CIS1	2.35E-05	lbs/Mgal	X	X	X	
Steam Generator, Crude Oil	Phenanthrene	111CIS2	1.62E-04	lbs/Mgal	X	X	X	
Steam Generator, Crude Oil	Pyrene	435CIR1	7.22E-05	lbs/Mgal	X	X	X	
Steam Generator, Crude Oil	Toluene	638CIR7	1.16E-02	lbs/Mgal	X	X	X	
Steam Generator, Natural Gas	Acenaphthylene	178CIR3	4.12E-07	lbs/MMcf	X	X	X	
Steam Generator, Natural Gas	Acenaphthylene	178CIR1	3.50E-06	lbs/MMcf	X	X	X	
Steam Generator, Natural Gas	Acenaphthylene	178CIR2	1.03E-05	lbs/MMcf	X	X	X	
Steam Generator, Natural Gas	Benzo(a)anthracene	108CIR5	6.82E-07	lbs/MMcf	X	X	X	
Steam Generator, Natural Gas	Benzo(a)anthracene	178CIR3	1.15E-06	lbs/MMcf	X	X	X	
Steam Generator, Natural Gas	Benzo(a)anthracene	108CIR2	2.16E-06	lbs/MMcf	X	X	X	
Steam Generator, Natural Gas	Benzo(a)pyrene	178CIR2	1.33E-06	lbs/MMcf	X	X	X	
Steam Generator, Natural Gas	Formaldehyde	110CIR3	1.58E-02	lbs/MMcf	X	X	X	
Turbine, Distillate	Phenanthrene	140CIR1	6.54E-04	lbs/Mgal	X	X	X	
Turbine, Natural Gas	2-Chloronaphthalene	145CIR1	4.69E-07	lbs/MMcf	X	X	X	
Turbine, Natural Gas	Acetaldehyde	418CIR1	2.91E-01	lbs/MMcf	X	X	X	
Turbine, Natural Gas	Benzene	167CIR2	4.72E-02	lbs/MMcf	X	X	X	
Turbine, Natural Gas	Benzene	176CIR3	1.51E-01	lbs/MMcf	X	X	X	
Turbine, Natural Gas	Benzene	176CIR2	2.47E-01	lbs/MMcf	X	X	X	
Turbine, Natural Gas	Benzene	176CIR1	7.89E-01	lbs/MMcf	X	X	X	
Turbine, Natural Gas	Benzo(e)pyrene	144CIR3	3.88E-06	lbs/MMcf	X	X	X	
Turbine, Natural Gas	Ethylbenzene	167CIR1	3.86E-02	lbs/MMcf	X	X	X	
Turbine, Natural Gas	Ethylbenzene	167CIR2	5.70E-02	lbs/MMcf	X	X	X	
Turbine, Natural Gas	Ethylbenzene	167CIR3	1.15E-01	lbs/MMcf	X	X	X	

TABLE 17. OUTLIER ACTION REPORT BY MAJOR GROUP AND SUBSTANCE.

Major Group	Substance	EEER Run ID	Emission Factor	Unit	Calculation Method	Process	Comment
Turbine, Natural Gas	Fluoranthene	418C1R3	1.10E-04	lbs/MMcf	X	X	
Turbine, Natural Gas	Fluoranthene	418C1R2	2.12E-04	lbs/MMcf	X	X	
Turbine, Natural Gas	Fluoranthene	418C1R1	3.05E-04	lbs/MMcf	X	X	
Turbine, Natural Gas	Fluorene	418C1R1	4.58E-04	lbs/MMcf	X	X	
Turbine, Natural Gas	Formaldehyde	150C1R1	3.93E+00	lbs/MMcf	X	X	
Turbine, Natural Gas	Formaldehyde	150C1R3	4.56E+00	lbs/MMcf	X	X	
Turbine, Natural Gas	Formaldehyde	150C1R2	5.55E+00	lbs/MMcf	X	X	
Turbine, Natural Gas	Phenanthrene	167C1R1	2.84E-04	lbs/MMcf	X	X	
Turbine, Natural Gas	Phenanthrene	418C1R3	9.16E-04	lbs/MMcf	X	X	
Turbine, Natural Gas	Phenanthrene	418C1R2	1.15E-03	lbs/MMcf	X	X	
Turbine, Natural Gas	Phenanthrene	418C1R1	2.35E-03	lbs/MMcf	X	X	
Turbine, Natural Gas	Pyrene	418C1R1	1.13E-04	lbs/MMcf	X	X	
Turbine, Natural Gas	Pyrene	418C1R2	1.27E-04	lbs/MMcf	X	X	

X - Checked

O - Action Required.

C - Emission Factor Corrected.

TABLE 18. EMISSION FACTOR GROUPS.

Major Group*	Sub Group	Material/Fuel	SCC	APC System	Other
Asphalt Blowing	1	Asphalt fumes	30601101	TO	Blow Cycle
Asphalt Blowing	2	Asphalt fumes	30601101	TO	No Blow Cycle
Asphalt Prod., Diesel	1	Diesel	30500211	C/FF	None
Asphalt Prod., Diesel	2	Diesel	30500205	FF	None
Asphalt Prod., Diesel	3	Diesel	30500205	WS	None
Asphalt Prod., Natural Gas	1	Natural gas	30500211	C/WS	None
Asphalt Prod., Natural Gas	1	Natural gas	30500211	C/FF	None
Asphalt Prod., Oil	1	Process oil 70	30500211	C/WS	None
Boiler, Distillate	1	Diesel	10200501	None	None
Boiler, Distillate	1	Diesel	10300501	None	None
Boiler, Fuel Oil	1	No. 6 fuel oil	10100401	None	None
Boiler, Fuel Oil	2	No. 6 fuel oil	10200401	None	None
Boiler, Fuel Oil	2	No. 6 fuel oil	10200403	None	None
Boiler, Fuel Oil	2	No. 6 fuel oil	10200402	None	None
Boiler, Fuel Oil	2	Residual fuel	10200401	None	None
Boiler, Landfill Gas	1	Landfill gas	10300811	None	None
Boiler, Natural Gas	1	Natural gas	10100601	None	None
Boiler, Wood	1	Wood	10100903	ESP/MC	None
Cement Kiln, Coal	1	Coal	30500606	FF	None
Cement Kiln, Coal/Coke	1	Coal/coke	30500606	FF	None
Coating, Green PE	1	15% chromium	40200110	BF	HVLP Spray Guns
Coating, Green PE	2	15% chromium	40200110	PA	HVLP Spray Guns
Coating, Green PE	3	15% chromium	40200110	WC	HVLP Spray Guns
Coating, Green PE	4	15% chromium	40200110	WT	HVLP Spray Guns
Coating, Green Primer	1	25-35% chromate	40200610	BF	HVLP Spray Guns
Coating, Green Primer	2	25-35% chromate	40200610	PA	HVLP Spray Guns
Coating, Green Primer	3	25-35% chromate	40200610	WC	Conventional Spray
Coating, Green Primer	4	25-35% chromate	40200610	WC	HVLP Spray Guns
Coating, Green Primer	5	25-35% chromate	40200610	WSN	Conventional Spray
Coating, Green Primer	6	25-35% chromate	40200610	WT	HVLP Spray Guns
Coating, Powder	1	75% Cr3C2, 20% NiCr, 5% Cr	40200101	None	Conventional Spray
Coating, Powder	2	87% Al2O3, 13% TiO2	40200101	None	Conventional Spray
Coating, Powder	3	70% Ni, 4% Cr	40202499	AF	Conventional Spray
Coating, Powder	4	49% Ni, 44% Cr	40202499	AF	Conventional Spray
Coating, Powder	5	4% Ni, 96% Al	40202499	AF	Conventional Spray
Coating, Powder	6	80% Ni, 20%Cr	40200101	None	Conventional Spray
Coating, Powder	7	100% chromium oxide	40200101	None	Conventional Spray
Coating, Yellow PE	1	30% lead chromate	40200110	BF	Conventional Spray
Coke Calcining	1	Natural gas	30601401	SD/FF	None
Drum Burning Furnace	1	None	30902501	AB	None
FBC, Biomass	1	Wood waste	10100903	A/C/ESP	None
FBC, Biomass	2	Agricultural waste	10100903	A/C/FF	None
FBC, Coal	1	Coal	10100217	L/A/C/FF	None
FBC, Coal	1	Coal	10100217	L/A/FF/ESP	None
FBC, Coke	1	Coke	10100801	L/A/C/FF	None
Furnace, Alloy Stock	1	Alloy stock	30300926	None	Electric Induction
Furnace, Aluminum	1	Aluminum	30400107	FF	Dross
Furnace, Aluminum	2	Aluminum	30400199	None	Melting Pot
Furnace, Aluminum	3	Aluminum	30400103	FF	Reverberatory
Furnace, Aluminum	4	Aluminum	30400103	None	Reverberatory
Furnace, Brass/Bronze	1	Brass and bronze ingot	30400224	FF	Electric Induction
Furnace, Glass	1	Sand/limestone/soda	30501402	FF	None
Furnace, Glass	2	Sand/limestone/soda	30501402	None	None
Furnace, Glass	2	Sand/limestone/ash	30501403	None	None
Heater, Natural Gas	1	Natural gas	31000404	None	None
Heater, Natural/Ref. Gas	1	Natural gas/RFG	30600199	None	None

TABLE 18. EMISSION FACTOR GROUPS.

Major Group*	Sub Group	Material/Fuel	SCC	APC System	Other
Heater, Oil	1	Pipeline oil	31000403	None	None
ICE, Diesel	1	Diesel	20200102	None	Oxygen < 13%
ICE, Diesel	2	Diesel	20300101	None	Oxygen < 13%
ICE, Diesel	3	Diesel	20100102	None	Oxygen > 13%
ICE, Diesel	4	Diesel	20200102	None	Oxygen > 13%
ICE, Field Gas	1	Field gas	20200202	None	Lean/4S/<650 Hp
ICE, Field Gas	2	Field gas	20200252	None	Lean/2S/<650 Hp
ICE, Field Gas	4	Field gas	20200254	None	Rich/4S/<650 Hp
ICE, Field Gas	5	Field gas	20200252	None	Lean/2S/>650 Hp
ICE, Landfill Gas	1	Landfill gas	20100802	None	None
ICE, Natural Gas	1	Natural gas	20200202	None	Lean/4S/<650 Hp
ICE, Natural Gas	2	Natural gas	20200254	None	Rich/4S/<650 Hp
ICE, Natural Gas	3	Natural gas	20200202	None	Lean/4S/>650 Hp
ICE, Natural Gas	4	Natural gas	20200252	None	Lean/2S/>650 Hp
Plating, Anodizing	1	Chromic acid	30901006	WS	Anodizing
Plating, Anodizing	2	Chromic acid	30901006	DM/WS/FF	Anodizing
Plating, Hard	1	Chromic acid	30901006	WS	Hard
Plating, Hard	1	Chromic acid	30901006	DM/PB	Hard
Plating, Hard	1	Chromic acid	30901006	DM	Hard
Plating, Hard	1	Chromic acid	30901006	DM/WS/PB	Hard
Plating, Hard	2	Chromic acid	30901006	DM/WS/FF	Hard
PM, Devolatilizer	1	Styrene monomer	30101818	None	Devolatilizer
PM, Extruder	1	Styrene monomer	30101818	ESP	Extruder
PM, Mix Tank	1	Styrene monomer	30101818	None	Mix Tank
PM, Reactor	1	Styrene monomer	30101818	None	Reactor
PM, Storage Silo	1	Styrene monomer	30101817	None	Storage Silo
Preheater Kiln, Coal	1	Coal	30501622	C/FF	None
SG, Crude Oil	1	Crude oil	31000413	SO2 Scrub	None
SG, Crude Oil	1	Crude oil	31000413	None	None
SG, Natural Gas	1	Natural gas	31000414	None	None
SG, Natural/CVR Gas	1	Natural gas/CVR gas	31000499	None	None
Turbine, Distillate	1	No. 2 distillate oil	20100101	None	None
Turbine, Distillate	1	Diesel	20100101	None	None
Turbine, Distillate	2	No. 2 distillate oil	20200103	None	None
Turbine, Field Gas	1	Field gas	20200203	None	None
Turbine, Landfill Gas	1	Landfill gas	20100801	None	None
Turbine, Natural Gas	1	Natural gas	20200201	None	None
Turbine, Natural Gas	2	Natural gas	20200203	None	None
Turbine, Natural Gas	2	Natural gas	20200203	SCR	None
Turbine, Natural Gas	2	Natural gas	20200203	COC/SCR	None

\*A set of emission factors is provided in Table 24 for each row of data given above.

Emission factors in sets not separated by lines are the same.

TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95% Confidence
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average	
Asphalt Blowing	Halogens	HCl	lbs/MMcf	1	2.21E-03	1.00	1	8.22E-04	1.00	NA	NA	
Asphalt Blowing	Metals	Arsenic	lbs/MMcf	1	1.31E-02	0.00	2	1.16E-02	0.00	NA	NA	
Asphalt Blowing	Metals	Beryllium	lbs/MMcf	1	2.63E-03	0.00	2	2.33E-03	0.00	NA	NA	
Asphalt Blowing	Metals	Cadmium	lbs/MMcf	1	5.25E-03	0.00	2	4.65E-03	0.00	NA	NA	
Asphalt Blowing	Metals	Chromium	lbs/MMcf	1	4.18E-02	1.00	2	1.42E-02	0.00	NA	NA	
Asphalt Blowing	Metals	Chromium (Hex)	lbs/MMcf	1	3.17E-03	1.00	2	3.28E-03	0.00	NA	NA	
Asphalt Blowing	Metals	Copper	lbs/MMcf	1	4.75E-02	1.00	2	3.79E-02	1.00	NA	NA	
Asphalt Blowing	Metals	Lead	lbs/MMcf	1	5.25E-02	0.00	2	4.65E-02	0.00	NA	NA	
Asphalt Blowing	Metals	Manganese	lbs/MMcf	1	1.23E-01	1.00	2	2.07E-01	1.00	NA	NA	
Asphalt Blowing	Metals	Mercury	lbs/MMcf	1	9.07E-03	1.00	2	8.53E-03	1.00	NA	NA	
Asphalt Blowing	Metals	Nickel	lbs/MMcf	1	6.65E-02	0.00	2	6.01E-02	0.00	NA	NA	
Asphalt Blowing	Metals	Selenium	lbs/MMcf	1	1.31E-02	0.00	2	1.16E-02	0.00	NA	NA	
Asphalt Blowing	Metals	Zinc	lbs/MMcf	1	8.41E-01	1.00	2	5.35E-01	1.00	NA	NA	
Asphalt Blowing	PAH	Acenaphthylene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Anthracene	lbs/MMcf	1	4.40E-03	0.00	2	6.96E-03	1.00	NA	NA	
Asphalt Blowing	PAH	Benzo(a)anthracene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Benzo(a)pyrene	lbs/MMcf	1	6.66E-03	1.00	2	1.39E-02	1.00	NA	NA	
Asphalt Blowing	PAH	Benzo(b)fluoranthene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Benzo(g,h,i)perylene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Benzo(k)fluoranthene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Chrysene	lbs/MMcf	1	4.45E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	dibenz(a,h)anthracene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Fluoranthene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Fluorene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Indeno(1,2,3-cd)pyrene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Naphthalene	lbs/MMcf	1	3.56E-02	1.00	2	4.18E-02	1.00	NA	NA	
Asphalt Blowing	PAH	Phenanthrene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	PAH	Pyrene	lbs/MMcf	1	4.40E-03	0.00	2	4.55E-03	0.00	NA	NA	
Asphalt Blowing	SVOC	Ethylbenzene	lbs/MMcf	1	8.61E-01	0.00	2	7.62E-01	0.00	NA	NA	
Asphalt Blowing	SVOC	Phenol	lbs/MMcf	1	7.57E-02	1.00	2	4.64E-02	1.00	NA	NA	
Asphalt Blowing	VOC	Acetaldehyde	lbs/MMcf	1	1.78E-03	1.00	2	4.32E-03	1.00	NA	NA	
Asphalt Blowing	VOC	Benzene	lbs/MMcf	1	3.16E-01	0.00	2	2.80E-01	0.00	NA	NA	
Asphalt Blowing	VOC	Formaldehyde	lbs/MMcf	1	3.55E-03	1.00	2	1.30E-02	1.00	NA	NA	
Asphalt Blowing	VOC	Hydrogen Sulfide	lbs/MMcf	1	2.07E+00	0.00	2	1.83E+00	0.00	NA	NA	
Asphalt Blowing	VOC	Total Xylene	lbs/MMcf	1	8.61E-01	0.00	2	7.62E-01	0.00	NA	NA	
Asphalt Prod., Diesel	Metals	Arsenic	lbs/ton production	1	2.73E-07	3.93E-09	2	6.60E-08	4.74E-08	1.00	Yes	
Asphalt Prod., Diesel	Metals	Arsenic	lbs/ton production	3	2.73E-07	3.93E-09	3	8.02E-06	8.02E-06	0.00	Yes	
Asphalt Prod., Diesel	Metals	Arsenic	lbs/ton production	2	6.60E-08	4.74E-08	3	8.02E-06	8.02E-06	0.00	Yes	
Asphalt Prod., Diesel	Metals	Beryllium	lbs/ton production	1	3	5.45E-07	2	1.50E-07	1.42E-08	0.00	Yes	
Asphalt Prod., Diesel	Metals	Beryllium	lbs/ton production	3	5.45E-07	7.85E-09	3	4.01E-06	4.01E-06	0.00	Yes	
Asphalt Prod., Diesel	Metals	Beryllium	lbs/ton production	2	3	5.45E-07	3	4.01E-06	4.01E-06	0.00	Yes	
Asphalt Prod., Diesel	Metals	Cadmium	lbs/ton production	1	1.62E-06	3.92E-08	2	1.38E-07	3.92E-08	0.78	Yes	
Asphalt Prod., Diesel	Metals	Cadmium	lbs/ton production	1	1.62E-06	3.92E-08	3	4.41E-05	4.41E-05	1.00	NA	
Asphalt Prod., Diesel	Metals	Cadmium	lbs/ton production	2	3	1.38E-07	2	1.38E-07	1.38E-07	1.00	Yes	
Asphalt Prod., Diesel	Metals	Chromium	lbs/ton production	1	3	1.96E-06	2	5.23E-07	3.40E-07	1.00	No	
Asphalt Prod., Diesel	Metals	Chromium	lbs/ton production	1	3	1.96E-06	3	1.96E-06	1.96E-06	1.00	Yes	
Asphalt Prod., Diesel	Metals	Chromium	lbs/ton production	2	3	5.23E-07	2	3.40E-07	3.40E-07	1.00	Yes	
Asphalt Prod., Diesel	Metals	Chromium (Hex)	lbs/ton production	1	1	1.50E-06	2	8.56E-08	3.14E-08	1.00	Yes	
Asphalt Prod., Diesel	Metals	Copper	lbs/ton production	1	2	1.50E-06	2	1.12E-06	3.15E-07	1.00	No	
Asphalt Prod., Diesel	Metals	Copper	lbs/ton production	1	2	1.50E-06	2	1.50E-06	1.50E-06	1.00	Yes	

TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95% Confidence			
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average		Standard Deviation	Detect Ratio*	
Asphalt Prod., Diesel	Metals	Copper	lbs/ton production	2	3	1.12E-06	3.15E-07	1.00	1	2	3	2.27E-06	1.54E-06	1.00	No
Asphalt Prod., Diesel	Metals	Lead	lbs/ton production	1	3	2.01E-06	8.58E-07	1.00	1	2	3	2.27E-06	1.54E-06	1.00	No
Asphalt Prod., Diesel	Metals	Lead	lbs/ton production	1	3	2.01E-06	8.58E-07	1.00	1	2	3	2.27E-06	1.54E-06	1.00	No
Asphalt Prod., Diesel	Metals	Lead	lbs/ton production	2	3	2.27E-06	1.54E-06	1.00	1	2	3	2.27E-06	1.54E-06	1.00	Yes
Asphalt Prod., Diesel	Metals	Manganese	lbs/ton production	1	3	1.24E-05	4.38E-06	1.00	1	2	3	9.11E-07	1.82E-07	1.00	Yes
Asphalt Prod., Diesel	Metals	Manganese	lbs/ton production	2	3	9.11E-07	1.82E-07	1.00	1	2	3	9.11E-07	1.82E-07	1.00	Yes
Asphalt Prod., Diesel	Metals	Mercury	lbs/ton production	1	3	4.88E-08	2.84E-08	0.52	1	2	3	7.06E-07	7.92E-08	0.00	Yes
Asphalt Prod., Diesel	Metals	Mercury	lbs/ton production	1	3	4.88E-08	2.84E-08	0.52	1	2	3	7.06E-07	7.92E-08	0.00	Yes
Asphalt Prod., Diesel	Metals	Nickel	lbs/ton production	2	3	7.06E-07	7.92E-08	0.00	1	2	3	8.02E-07	1.00	No	
Asphalt Prod., Diesel	Metals	Nickel	lbs/ton production	1	3	2.73E-06	3.93E-08	0.00	1	2	3	5.35E-07	2.00E-07	1.00	Yes
Asphalt Prod., Diesel	Metals	Nickel	lbs/ton production	1	3	2.73E-06	3.93E-08	0.00	1	2	3	5.35E-07	2.00E-07	1.00	Yes
Asphalt Prod., Diesel	Metals	Nickel	lbs/ton production	2	3	5.35E-07	2.00E-07	1.00	1	2	3	3.81E-04	0.00	0.00	Yes
Asphalt Prod., Diesel	Metals	Selenium	lbs/ton production	1	3	2.73E-07	3.93E-09	0.00	1	2	3	1.13E-06	5.00E-07	0.00	Yes
Asphalt Prod., Diesel	Metals	Selenium	lbs/ton production	1	3	2.73E-07	3.93E-09	0.00	1	2	3	8.02E-06	0.00	0.00	Yes
Asphalt Prod., Diesel	Metals	Selenium	lbs/ton production	2	3	1.16E-06	5.08E-07	0.50	1	2	3	8.02E-06	0.00	0.00	Yes
Asphalt Prod., Diesel	Metals	Zinc	lbs/ton production	1	3	1.82E-05	5.62E-06	1.00	1	2	3	6.71E-06	6.28E-06	1.00	No
Asphalt Prod., Diesel	Metals	Zinc	lbs/ton production	1	3	1.82E-05	5.62E-06	1.00	1	2	3	6.71E-06	6.28E-06	1.00	Yes
Asphalt Prod., Diesel	Metals	Zinc	lbs/ton production	2	3	6.71E-06	6.28E-06	1.00	1	2	3	6.71E-06	6.28E-06	1.00	Yes
Asphalt Prod., Diesel	PAH	Acenaphthene	lbs/ton production	1	3	4.80E-07	4.21E-07	1.00	1	2	3	2.11E-08	1.08E-08	1.00	No
Asphalt Prod., Diesel	PAH	Acenaphthylene	lbs/ton production	1	3	3.36E-07	2.72E-07	1.00	1	2	3	2.04E-08	1.89E-08	1.00	No
Asphalt Prod., Diesel	PAH	Anthracene	lbs/ton production	1	3	3.21E-08	7.68E-09	1.00	1	2	3	1.68E-08	7.54E-09	1.00	No
Asphalt Prod., Diesel	PAH	Benzo(a)anthracene	lbs/ton production	1	3	3.21E-08	7.68E-09	1.00	1	2	3	6.41E-09	2.56E-09	1.00	Yes
Asphalt Prod., Diesel	PAH	Benzo(a)pyrene	lbs/ton production	1	3	3.21E-08	7.68E-09	1.00	1	2	3	3.13E-10	5.29E-11	1.00	Yes
Asphalt Prod., Diesel	PAH	Benzo(b)fluoranthene	lbs/ton production	1	3	3.21E-08	7.68E-09	1.00	1	2	3	3.13E-10	5.29E-11	1.00	No
Asphalt Prod., Diesel	PAH	Benzo(k)fluoranthene	lbs/ton production	1	3	3.21E-08	7.68E-09	1.00	1	2	3	3.13E-10	5.29E-11	1.00	No
Asphalt Prod., Diesel	PAH	Chrysene	lbs/ton production	1	3	1.76E-09	8.74E-10	0.00	1	2	3	1.90E-10	1.08E-10	0.00	Yes
Asphalt Prod., Diesel	PAH	dibenz(a,h)anthracene	lbs/ton production	1	3	1.76E-09	8.74E-10	0.00	1	2	3	1.90E-10	1.08E-10	0.00	Yes
Asphalt Prod., Diesel	PAH	Fluoranthene	lbs/ton production	1	3	1.76E-09	8.74E-10	0.00	1	2	3	1.90E-10	1.08E-10	0.00	Yes
Asphalt Prod., Diesel	PAH	Fluorene	lbs/ton production	1	3	1.76E-09	8.74E-10	0.00	1	2	3	1.90E-10	1.08E-10	0.00	Yes
Asphalt Prod., Diesel	PAH	Indeno(1,2,3-cd)pyrene	lbs/ton production	1	3	1.76E-09	8.74E-10	0.00	1	2	3	1.90E-10	1.08E-10	0.00	Yes
Asphalt Prod., Diesel	PAH	Naphthalene	lbs/ton production	1	3	1.76E-09	8.74E-10	0.00	1	2	3	1.90E-10	1.08E-10	0.00	Yes
Asphalt Prod., Diesel	PAH	Phenanthrene	lbs/ton production	1	3	1.76E-09	8.74E-10	0.00	1	2	3	1.90E-10	1.08E-10	0.00	Yes
Asphalt Prod., Diesel	PAH	Pyrene	lbs/ton production	1	3	1.76E-09	8.74E-10	0.00	1	2	3	1.90E-10	1.08E-10	0.00	No
Asphalt Prod., Diesel	VOC	Benzene	lbs/ton production	1	3	4.75E-05	2.78E-05	1.00	1	2	3	7.23E-07	3.10E-07	1.00	No
Asphalt Prod., Diesel	VOC	Benzene	lbs/ton production	1	3	6.27E-07	2.36E-07	1.00	1	2	3	5.99E-08	2.56E-08	1.00	Yes
Asphalt Prod., Diesel	VOC	Benzene	lbs/ton production	1	3	6.27E-07	2.36E-07	1.00	1	2	3	5.99E-08	2.56E-08	1.00	Yes
Asphalt Prod., Diesel	VOC	Formaldehyde	lbs/ton production	2	3	1.04E-03	4.65E-05	0.00	1	2	3	1.04E-03	4.65E-05	0.00	Yes
Boiler, Fuel Oil	Metals	Arsenic	lbs/Mgal	1	9	1.06E-03	5.51E-04	1.00	1	2	21	6.49E-04	8.83E-04	0.51	No
Boiler, Fuel Oil	Metals	Beryllium	lbs/Mgal	1	9	1.48E-05	1.50E-05	0.62	1	2	21	4.58E-04	1.07E-03	0.94	No
Boiler, Fuel Oil	Metals	Cadmium	lbs/Mgal	1	9	2.33E-04	2.32E-04	1.00	1	2	21	3.60E-03	1.10E-02	0.95	No
Boiler, Fuel Oil	Metals	Chromium	lbs/Mgal	1	9	6.09E-04	2.44E-04	1.00	1	2	21	1.70E-03	2.10E-03	0.82	No
Boiler, Fuel Oil	Metals	Chromium (Hex)	lbs/Mgal	1	9	1.81E-04	1.72E-04	0.90	1	2	18	3.50E-04	8.83E-04	0.16	No
Boiler, Fuel Oil	Metals	Copper	lbs/Mgal	1	9	1.40E-03	1.12E-03	1.00	1	2	21	4.74E-03	4.92E-03	1.00	No
Boiler, Fuel Oil	Metals	Lead	lbs/Mgal	1	9	1.61E-03	1.12E-03	1.00	1	2	21	5.08E-03	1.06E-02	0.88	No
Boiler, Fuel Oil	Metals	Manganese	lbs/Mgal	1	9	1.58E-03	1.37E-03	1.00	1	2	21	2.92E-02	1.19E-01	0.99	No
Boiler, Fuel Oil	Metals	Mercury	lbs/Mgal	1	9	3.06E-03	1.91E-03	0.00	1	2	21	2.06E-04	3.32E-04	0.72	Yes
Boiler, Fuel Oil	Metals	Nickel	lbs/Mgal	1	9	9.75E-02	5.45E-02	1.00	1	2	21	1.26E-01	1.71E-01	0.69	No
Boiler, Fuel Oil	Metals	Selenium	lbs/Mgal	1	9	9.61E-04	6.71E-04	0.87	1	2	21	3.55E-03	9.84E-03	0.92	No
Boiler, Fuel Oil	Metals	Zinc	lbs/Mgal	1	9	1.41E-02	8.27E-03	1.00	1	2	21	9.73E-02	2.42E-01	1.00	No



TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95% Confidence		
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average		Standard Deviation	Detect Ratio*
Coating, Green Primer	Metals	Chromium (Hex)	lbs/gal paint	2	4	2.87E-04	3.20E-04	1.00	4	2	2.63E-04	1.50E-04	1.00	No
Coating, Green Primer	Metals	Chromium (Hex)	lbs/gal paint	2	4	2.87E-04	3.20E-04	1.00	5	3	8.32E-04	4.49E-04	1.00	No
Coating, Green Primer	Metals	Chromium (Hex)	lbs/gal paint	2	4	2.87E-04	3.20E-04	1.00	6	2	2.26E-04	1.63E-04	1.00	No
Coating, Green Primer	Metals	Chromium (Hex)	lbs/gal paint	3	2	1.42E-03	4.11E-04	1.00	4	2	2.63E-04	1.50E-04	1.00	No
Coating, Green Primer	Metals	Chromium (Hex)	lbs/gal paint	3	2	1.42E-03	4.11E-04	1.00	5	3	8.32E-04	4.49E-04	1.00	No
Coating, Green Primer	Metals	Chromium (Hex)	lbs/gal paint	4	2	2.63E-04	1.50E-04	1.00	6	3	2.26E-04	1.63E-04	1.00	Yes
Coating, Green Primer	Metals	Chromium (Hex)	lbs/gal paint	4	2	2.63E-04	1.50E-04	1.00	5	3	8.32E-04	4.49E-04	1.00	No
Coating, Green Primer	Metals	Chromium (Hex)	lbs/gal paint	5	3	3.75E-01	4.88E-01	1.00	6	6	2.26E-04	1.63E-04	1.00	No
Coating, Powder	Metals	Chromium	lbs/lbs powder	1	1	3.75E-01	4.88E-01	1.00	2	1	3.48E-04	1.63E-04	1.00	Yes
Coating, Powder	Metals	Chromium	lbs/lbs powder	1	1	3.75E-01	4.88E-01	1.00	3	1	1.86E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	1	1	3.75E-01	4.88E-01	1.00	4	1	4.02E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	1	1	3.75E-01	4.88E-01	1.00	6	1	1.86E-03	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	1	1	3.75E-01	4.88E-01	1.00	7	1	1.42E-01	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	2	1	3.48E-04	1.63E-04	1.00	3	1	1.86E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	2	1	3.48E-04	1.63E-04	1.00	4	1	4.02E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	2	1	3.48E-04	1.63E-04	1.00	6	1	1.86E-03	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	2	1	3.48E-04	1.63E-04	1.00	7	1	1.42E-01	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	3	1	1.86E-04	1.00	1.00	4	1	4.02E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	3	1	1.86E-04	1.00	1.00	6	1	1.86E-03	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	3	1	1.86E-04	1.00	1.00	7	1	1.42E-01	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	4	1	4.02E-04	1.00	1.00	6	1	1.86E-03	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	4	1	4.02E-04	1.00	1.00	7	1	1.42E-01	1.00	1.00	NA
Coating, Powder	Metals	Chromium	lbs/lbs powder	6	1	1.86E-03	1.00	1.00	7	1	1.42E-01	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	1	1	1.63E-02	1.00	1.00	3	1	1.81E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	1	1	1.63E-02	1.00	1.00	4	1	3.00E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	1	1	1.63E-02	1.00	1.00	6	1	2.58E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	1	1	1.63E-02	1.00	1.00	7	1	8.91E-03	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	3	1	1.81E-04	1.00	1.00	4	1	3.00E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	3	1	1.81E-04	1.00	1.00	6	1	2.58E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	3	1	1.81E-04	1.00	1.00	7	1	8.91E-03	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	4	1	3.00E-04	1.00	1.00	6	1	2.58E-04	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	4	1	3.00E-04	1.00	1.00	7	1	8.91E-03	1.00	1.00	NA
Coating, Powder	Metals	Chromium (Hex)	lbs/lbs powder	6	1	2.58E-04	1.00	1.00	7	1	8.91E-03	1.00	1.00	NA
FBC, Biomass	Dioxin & Furan	4D 2378	lbs/ton	1	3	2.89E-11	1.03E-11	0.00	2	3	4.46E-10	4.17E-11	0.00	Yes
FBC, Biomass	Dioxin & Furan	4F 2378	lbs/ton	1	3	1.29E-10	5.25E-11	0.00	2	3	3.20E-09	2.68E-09	1.00	No
FBC, Biomass	Dioxin & Furan	5D 12378	lbs/ton	1	3	3.28E-11	1.14E-11	0.00	2	3	3.20E-09	2.68E-09	1.00	No
FBC, Biomass	Dioxin & Furan	5F 12378	lbs/ton	1	3	6.27E-11	2.28E-11	1.00	2	3	3.20E-09	2.68E-09	1.00	Yes
FBC, Biomass	Dioxin & Furan	5F 23478	lbs/ton	1	3	1.03E-10	2.69E-11	1.00	2	3	3.20E-09	2.68E-09	1.00	Yes
FBC, Biomass	Dioxin & Furan	6D 123478	lbs/ton	1	3	4.36E-11	4.86E-12	0.29	2	3	1.22E-09	4.69E-10	0.00	Yes
FBC, Biomass	Dioxin & Furan	6D 123678	lbs/ton	1	3	6.38E-11	2.75E-11	0.50	2	3	1.22E-09	4.69E-10	0.00	Yes
FBC, Biomass	Dioxin & Furan	6D 123789	lbs/ton	1	3	4.77E-11	8.28E-12	0.40	2	3	1.22E-09	4.69E-10	0.00	Yes
FBC, Biomass	Dioxin & Furan	6F 123478	lbs/ton	1	3	7.59E-11	3.95E-11	1.00	2	3	1.22E-09	4.69E-10	0.00	Yes
FBC, Biomass	Dioxin & Furan	6F 123678	lbs/ton	1	3	1.12E-10	5.11E-11	1.00	2	3	1.22E-09	4.69E-10	0.00	Yes
FBC, Biomass	Dioxin & Furan	6F 123789	lbs/ton	1	3	2.77E-11	2.63E-11	0.70	2	3	6.51E-10	5.42E-10	0.00	No
FBC, Biomass	Dioxin & Furan	6F 234678	lbs/ton	1	3	3.02E-10	2.69E-10	1.00	2	3	6.51E-10	5.42E-10	0.00	No
FBC, Biomass	Dioxin & Furan	7D 1234678	lbs/ton	1	3	6.90E-10	2.02E-10	1.00	2	3	6.51E-10	5.42E-10	0.00	No
FBC, Biomass	Dioxin & Furan	7F 1234678	lbs/ton	1	3	1.37E-09	1.44E-09	1.00	2	3	6.51E-10	5.42E-10	0.00	Yes
FBC, Biomass	Dioxin & Furan	7F 1234789	lbs/ton	1	3	8.97E-11	9.71E-11	0.92	2	3	7.43E-10	5.89E-10	0.63	Yes
FBC, Biomass	Dioxin & Furan	8D	lbs/ton	1	3	6.69E-09	2.53E-09	1.00	2	3	7.43E-10	5.89E-10	0.63	No
FBC, Biomass	Dioxin & Furan	8F	lbs/ton	1	3	1.61E-09	1.85E-09	1.00	2	3	5.24E-09	3.44E-09	0.81	No

TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95%-Confidence		
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average		Standard Deviation	Detect Ratio*
FBC, Biomass	PAH	Acenaphthene	lbs/ton	1	3	7.04E-07	3.53E-07	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Acenaphthylene	lbs/ton	1	3	2.67E-05	1.31E-05	1.00	2	3	9.47E-05	9.77E-05	0.95	No
FBC, Biomass	PAH	Anthracene	lbs/ton	1	3	5.68E-07	1.92E-07	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Benzo(a)anthracene	lbs/ton	1	3	2.05E-08	4.18E-09	0.74	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Benzo(a)pyrene	lbs/ton	1	3	1.64E-08	6.23E-10	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Benzo(b)fluoranthene	lbs/ton	1	3	1.25E-07	1.66E-08	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Benzo(g,h,i)perylene	lbs/ton	1	3	5.94E-08	3.59E-08	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Chrysene	lbs/ton	1	3	3.00E-08	9.68E-09	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	dibenz(a,h)anthracene	lbs/ton	1	3	2.35E-07	3.52E-08	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Fluoranthene	lbs/ton	1	3	1.64E-08	6.23E-10	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Fluorene	lbs/ton	1	3	6.73E-06	2.44E-06	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Indeno(1,2,3-cd)pyrene	lbs/ton	1	3	2.47E-08	1.15E-08	0.78	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Naphthalene	lbs/ton	1	3	2.99E-04	9.94E-05	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Phenanthrene	lbs/ton	1	3	1.92E-05	5.38E-06	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	PAH	Pyrene	lbs/ton	1	3	4.78E-06	1.66E-06	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
FBC, Biomass	VOC	Formaldehyde	lbs/ton	1	3	3.66E-04	1.35E-04	1.00	2	3	1.20E-05	3.01E-06	0.00	Yes
Furnace, Aluminum	Metals	Beryllium	lbs/ton production	1	3	8.00E-05	0.00E+00	0.00	2	3	4.00E-07	0.00E+00	0.00	NA
Furnace, Aluminum	Metals	Beryllium	lbs/ton production	1	3	8.00E-05	0.00E+00	0.00	3	3	1.33E-05	0.00E+00	0.00	NA
Furnace, Aluminum	Metals	Beryllium	lbs/ton production	1	3	8.00E-05	0.00E+00	0.00	4	3	2.99E-05	2.81E-06	0.00	Yes
Furnace, Aluminum	Metals	Beryllium	lbs/ton production	2	3	4.00E-07	0.00E+00	0.00	3	3	1.33E-05	0.00E+00	0.00	NA
Furnace, Aluminum	Metals	Beryllium	lbs/ton production	2	3	4.00E-07	0.00E+00	0.00	4	3	2.99E-05	2.81E-06	0.00	Yes
Furnace, Aluminum	Metals	Beryllium	lbs/ton production	3	3	1.33E-05	0.00E+00	0.00	4	3	2.99E-05	2.81E-06	0.00	Yes
Furnace, Aluminum	Metals	Cadmium	lbs/ton production	1	3	4.37E-04	3.71E-04	1.00	2	3	1.73E-06	4.62E-07	1.00	No
Furnace, Aluminum	Metals	Cadmium	lbs/ton production	1	3	4.37E-04	3.71E-04	1.00	3	3	1.40E-04	1.58E-04	1.00	No
Furnace, Aluminum	Metals	Cadmium	lbs/ton production	1	3	4.37E-04	3.71E-04	1.00	4	3	4.77E-05	1.72E-05	0.81	No
Furnace, Aluminum	Metals	Cadmium	lbs/ton production	2	3	1.73E-06	4.62E-07	1.00	3	3	1.40E-04	1.58E-04	1.00	No
Furnace, Aluminum	Metals	Cadmium	lbs/ton production	3	3	1.40E-04	1.58E-04	1.00	4	3	4.77E-05	1.72E-05	0.81	No
Furnace, Aluminum	Metals	Copper	lbs/ton production	1	3	1.13E-05	1.21E-05	1.00	2	3	2.53E-06	1.01E-06	1.00	Yes
Furnace, Aluminum	Metals	Copper	lbs/ton production	1	3	1.13E-05	1.21E-05	1.00	3	3	4.38E-04	3.79E-04	1.00	Yes
Furnace, Aluminum	Metals	Copper	lbs/ton production	1	3	1.13E-05	1.21E-05	1.00	4	3	1.22E-04	8.35E-05	1.00	Yes
Furnace, Aluminum	Metals	Copper	lbs/ton production	2	3	2.53E-06	1.01E-06	1.00	3	3	4.38E-04	3.79E-04	1.00	No
Furnace, Aluminum	Metals	Copper	lbs/ton production	2	3	2.53E-06	1.01E-06	1.00	4	3	1.22E-04	8.35E-05	1.00	No
Furnace, Aluminum	Metals	Copper	lbs/ton production	3	3	4.38E-04	3.79E-04	1.00	4	3	1.22E-04	8.35E-05	1.00	No
Furnace, Aluminum	Metals	Lead	lbs/ton production	1	3	6.95E-07	6.97E-05	1.00	2	3	1.33E-06	2.31E-07	1.00	Yes
Furnace, Aluminum	Metals	Lead	lbs/ton production	1	3	4.48E-04	6.97E-05	1.00	3	3	3.14E-04	8.62E-05	1.00	No
Furnace, Aluminum	Metals	Lead	lbs/ton production	1	3	4.48E-04	6.97E-05	1.00	4	3	7.71E-04	9.56E-04	1.00	No
Furnace, Aluminum	Metals	Lead	lbs/ton production	2	3	1.33E-06	2.31E-07	1.00	3	3	1.33E-06	2.31E-07	1.00	Yes
Furnace, Aluminum	Metals	Lead	lbs/ton production	2	3	1.33E-06	2.31E-07	1.00	4	3	7.71E-04	9.56E-04	1.00	No
Furnace, Aluminum	Metals	Lead	lbs/ton production	3	3	1.33E-06	2.31E-07	1.00	4	3	7.71E-04	9.56E-04	1.00	No
Furnace, Aluminum	Metals	Manganese	lbs/ton production	1	3	1.77E-04	6.97E-05	1.00	2	3	6.95E-07	5.65E-07	1.00	Yes
Furnace, Aluminum	Metals	Manganese	lbs/ton production	1	3	1.87E-04	4.03E-05	1.00	3	3	1.17E-04	9.80E-05	1.00	No
Furnace, Aluminum	Metals	Manganese	lbs/ton production	1	3	1.87E-04	4.03E-05	1.00	4	3	1.26E-02	2.15E-02	1.00	No
Furnace, Aluminum	Metals	Manganese	lbs/ton production	2	3	6.95E-07	5.65E-07	1.00	3	3	1.17E-04	9.80E-05	1.00	No
Furnace, Aluminum	Metals	Manganese	lbs/ton production	2	3	6.95E-07	5.65E-07	1.00	4	3	1.26E-02	2.15E-02	1.00	No
Furnace, Aluminum	Metals	Manganese	lbs/ton production	3	3	1.17E-04	9.80E-05	1.00	4	3	1.26E-02	2.15E-02	1.00	No
Furnace, Aluminum	Metals	Nickel	lbs/ton production	1	3	2.51E-04	8.81E-05	1.00	2	3	8.00E-07	4.00E-07	1.00	Yes
Furnace, Aluminum	Metals	Nickel	lbs/ton production	1	3	2.51E-04	8.81E-05	1.00	3	3	1.35E-04	1.24E-04	1.00	No
Furnace, Aluminum	Metals	Nickel	lbs/ton production	2	3	8.00E-07	4.00E-07	1.00	4	3	3.31E-04	3.81E-04	1.00	No
Furnace, Aluminum	Metals	Nickel	lbs/ton production	2	3	8.00E-07	4.00E-07	1.00	3	3	1.35E-04	1.24E-04	1.00	No

TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95% Confidence	
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average		Standard Deviation
Furnace, Aluminum	Metals	Nickel	lbs/ton production	2	3	8.00E-07	4.00E-07	1.00	3	3.31E-04	3.81E-04	1.00	No
Furnace, Aluminum	Metals	Nickel	lbs/ton production	3	3	1.35E-04	1.24E-04	1.00	4	3.31E-04	3.81E-04	1.00	No
Furnace, Aluminum	VOC	Benzene	lbs/ton production	1	3	1.17E-02	1.27E-02	0.75	2	8.00E-06	0.00E+00	0.00	No
Furnace, Aluminum	VOC	Benzene	lbs/ton production	1	3	1.17E-02	1.27E-02	0.75	3	5.84E-02	2.95E-02	1.00	No
Furnace, Aluminum	VOC	Benzene	lbs/ton production	2	3	8.00E-06	0.00E+00	0.00	3	8.00E-06	0.00E+00	1.00	Yes
Furnace, Aluminum	VOC	Formaldehyde	lbs/ton production	1	3	1.42E-04	1.52E-04	0.01	2	2.56E-04	9.06E-05	1.00	Yes
Furnace, Aluminum	VOC	Formaldehyde	lbs/ton production	1	3	1.42E-04	1.52E-04	0.01	3	8.88E-02	1.58E-02	1.00	Yes
Furnace, Aluminum	VOC	Formaldehyde	lbs/ton production	2	3	2.56E-04	9.06E-05	1.00	3	1.58E-02	1.58E-02	1.00	Yes
Furnace, Aluminum	VOC	Hydrogen Sulfide	lbs/ton production	1	3	1.79E-05	1.79E-05	1.00	2	5.47E-04	2.31E-05	1.00	Yes
Furnace, Aluminum	VOC	Hydrogen Sulfide	lbs/ton production	1	3	1.79E-05	1.79E-05	1.00	3	1.66E-01	3.00E-03	1.00	Yes
Furnace, Aluminum	VOC	Hydrogen Sulfide	lbs/ton production	1	3	1.79E-05	1.79E-05	1.00	4	2.32E-02	2.27E-03	1.00	Yes
Furnace, Aluminum	VOC	Hydrogen Sulfide	lbs/ton production	2	3	5.47E-04	2.31E-05	1.00	3	3.43E-02	3.99E-03	1.00	Yes
Furnace, Aluminum	VOC	Hydrogen Sulfide	lbs/ton production	2	3	5.47E-04	2.31E-05	1.00	4	3.43E-02	3.99E-03	1.00	Yes
Furnace, Aluminum	VOC	Hydrogen Sulfide	lbs/ton production	3	3	1.79E-05	1.79E-05	1.00	4	2.32E-02	2.27E-03	1.00	Yes
Furnace, Glass	Metals	Arsenic	lbs/ton production	1	3	3.70E-05	8.17E-06	1.00	2	2.28E-04	1.92E-04	1.00	No
Furnace, Glass	Metals	Chromium	lbs/ton production	1	3	1.60E-05	1.67E-05	1.00	2	2.06E-04	1.45E-04	1.00	No
Furnace, Glass	Metals	Chromium (Hex)	lbs/ton production	1	3	4.09E-06	1.42E-07	0.00	2	1.02E-03	1.56E-03	0.99	No
ICE, Diesel	PAH	Acenaphthene	lbs/Mgal	1	6	4.71E-04	2.47E-04	1.00	2	8.71E-04	1.33E-03	0.84	No
ICE, Diesel	PAH	Acenaphthene	lbs/Mgal	1	6	4.71E-04	2.47E-04	1.00	3	2.85E-06	1.15E-07	0.00	Yes
ICE, Diesel	PAH	Acenaphthene	lbs/Mgal	1	6	4.71E-04	2.47E-04	1.00	4	3.14E-03	6.61E-03	1.00	No
ICE, Diesel	PAH	Acenaphthene	lbs/Mgal	2	6	8.71E-04	1.33E-03	0.84	3	2.85E-06	1.15E-07	0.00	No
ICE, Diesel	PAH	Acenaphthene	lbs/Mgal	2	6	8.71E-04	1.33E-03	0.84	4	3.14E-03	6.61E-03	1.00	No
ICE, Diesel	PAH	Acenaphthene	lbs/Mgal	3	3	2.85E-06	1.15E-07	0.00	4	3.14E-03	6.61E-03	1.00	No
ICE, Diesel	PAH	Acenaphthylene	lbs/Mgal	1	6	1.09E-03	2.46E-04	1.00	2	9.45E-04	7.35E-04	0.90	No
ICE, Diesel	PAH	Acenaphthylene	lbs/Mgal	1	6	1.09E-03	2.46E-04	1.00	3	2.85E-06	1.15E-07	0.00	Yes
ICE, Diesel	PAH	Acenaphthylene	lbs/Mgal	1	6	1.09E-03	2.46E-04	1.00	4	4.07E-03	5.51E-03	1.00	No
ICE, Diesel	PAH	Acenaphthylene	lbs/Mgal	2	6	9.45E-04	7.35E-04	0.90	3	2.85E-06	1.15E-07	0.00	No
ICE, Diesel	PAH	Acenaphthylene	lbs/Mgal	2	6	9.45E-04	7.35E-04	0.90	4	4.07E-03	5.51E-03	1.00	No
ICE, Diesel	PAH	Acenaphthylene	lbs/Mgal	3	3	2.85E-06	1.15E-07	0.00	4	4.07E-03	5.51E-03	1.00	No
ICE, Diesel	PAH	Anthracene	lbs/Mgal	1	6	1.79E-04	7.79E-05	1.00	2	8.48E-04	9.58E-04	1.00	Yes
ICE, Diesel	PAH	Anthracene	lbs/Mgal	1	6	1.79E-04	7.79E-05	1.00	3	8.48E-04	9.58E-04	1.00	Yes
ICE, Diesel	PAH	Anthracene	lbs/Mgal	1	6	1.79E-04	7.79E-05	1.00	4	8.48E-04	9.58E-04	1.00	No
ICE, Diesel	PAH	Anthracene	lbs/Mgal	2	6	2.67E-04	2.33E-05	0.47	3	8.48E-04	9.58E-04	1.00	Yes
ICE, Diesel	PAH	Anthracene	lbs/Mgal	2	6	2.67E-04	2.33E-05	0.47	4	8.48E-04	9.58E-04	1.00	No
ICE, Diesel	PAH	Anthracene	lbs/Mgal	3	3	1.33E-03	2.13E-04	1.00	4	8.48E-04	9.58E-04	1.00	No
ICE, Diesel	PAH	Benzo(a)anthracene	lbs/Mgal	1	6	5.03E-05	4.08E-05	1.00	2	1.42E-04	1.52E-04	0.01	No
ICE, Diesel	PAH	Benzo(a)anthracene	lbs/Mgal	1	6	5.03E-05	4.08E-05	1.00	3	1.42E-04	1.52E-04	0.01	Yes
ICE, Diesel	PAH	Benzo(a)anthracene	lbs/Mgal	1	6	5.03E-05	4.08E-05	1.00	4	1.42E-04	1.52E-04	0.01	Yes
ICE, Diesel	PAH	Benzo(a)anthracene	lbs/Mgal	2	6	1.42E-04	1.52E-04	0.01	3	2.34E-04	1.94E-04	1.00	No
ICE, Diesel	PAH	Benzo(a)anthracene	lbs/Mgal	2	6	1.42E-04	1.52E-04	0.01	4	2.34E-04	1.94E-04	1.00	No
ICE, Diesel	PAH	Benzo(a)anthracene	lbs/Mgal	3	3	1.42E-04	1.52E-04	0.01	4	2.34E-04	1.94E-04	1.00	Yes
ICE, Diesel	PAH	Benzo(a)pyrene	lbs/Mgal	1	6	1.81E-05	2.09E-05	0.44	2	1.40E-04	1.53E-04	0.00	No
ICE, Diesel	PAH	Benzo(a)pyrene	lbs/Mgal	1	6	1.81E-05	2.09E-05	0.44	3	2.85E-06	1.15E-07	0.00	No
ICE, Diesel	PAH	Benzo(a)pyrene	lbs/Mgal	1	6	1.81E-05	2.09E-05	0.44	4	1.81E-05	2.53E-05	0.03	No
ICE, Diesel	PAH	Benzo(a)pyrene	lbs/Mgal	2	6	1.40E-04	1.53E-04	0.00	3	2.85E-06	1.15E-07	0.00	No
ICE, Diesel	PAH	Benzo(a)pyrene	lbs/Mgal	2	6	1.40E-04	1.53E-04	0.00	4	1.81E-05	2.53E-05	0.03	Yes
ICE, Diesel	PAH	Benzo(a)pyrene	lbs/Mgal	3	3	2.85E-06	1.15E-07	0.00	4	1.81E-05	2.53E-05	0.03	No
ICE, Diesel	PAH	Benzo(b)fluoranthene	lbs/Mgal	1	6	7.96E-05	8.36E-05	0.30	2	1.44E-04	1.49E-04	0.03	No
ICE, Diesel	PAH	Benzo(b)fluoranthene	lbs/Mgal	1	6	7.96E-05	8.36E-05	0.30	3	8.66E-05	6.76E-05	0.93	No
ICE, Diesel	PAH	Benzo(b)fluoranthene	lbs/Mgal	2	6	1.44E-04	1.49E-04	0.03	4	8.66E-05	6.76E-05	0.93	No
ICE, Diesel	PAH	Benzo(b+k)fluoranthene	lbs/Mgal	3	3	2.85E-06	1.15E-07	0.00	4	1.44E-06	2.72E-08	0.00	Yes

TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95% Confidence		
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average		Standard Deviation	Detect Ratio*
ICE, Diesel	PAH	Benzo(g,h,i)perylene	lbs/Mgal	1	6	3.89E-05	4.19E-05	0.99	2	6	1.42E-04	1.51E-04	0.02	No
ICE, Diesel	PAH	Benzo(g,h,i)perylene	lbs/Mgal	1	6	3.89E-05	4.19E-05	0.99	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	Benzo(g,h,i)perylene	lbs/Mgal	1	6	3.89E-05	4.19E-05	0.99	4	9	4.94E-05	4.74E-05	0.48	No
ICE, Diesel	PAH	Benzo(g,h,i)perylene	lbs/Mgal	2	6	1.42E-04	1.51E-04	0.02	3	3	3.39E-04	6.94E-05	1.00	No
ICE, Diesel	PAH	Benzo(g,h,i)perylene	lbs/Mgal	2	6	1.42E-04	1.51E-04	0.02	4	9	4.94E-05	4.74E-05	0.48	No
ICE, Diesel	PAH	Benzo(g,h,i)perylene	lbs/Mgal	3	3	3.39E-04	6.94E-05	1.00	4	9	4.94E-05	4.74E-05	0.48	Yes
ICE, Diesel	PAH	Benzo(k)fluoranthene	lbs/Mgal	1	6	1.56E-05	2.67E-05	0.74	2	6	1.41E-04	1.53E-04	0.00	No
ICE, Diesel	PAH	Benzo(k)fluoranthene	lbs/Mgal	1	6	1.56E-05	2.67E-05	0.74	4	6	3.28E-05	1.74E-05	0.68	No
ICE, Diesel	PAH	Benzo(k)fluoranthene	lbs/Mgal	2	6	1.41E-04	1.53E-04	0.00	4	6	3.28E-05	1.74E-05	0.68	No
ICE, Diesel	PAH	Chrysene	lbs/Mgal	1	6	1.06E-04	1.16E-04	1.00	2	6	1.53E-04	1.39E-04	0.09	No
ICE, Diesel	PAH	Chrysene	lbs/Mgal	1	6	1.06E-04	1.16E-04	1.00	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	Chrysene	lbs/Mgal	1	6	1.06E-04	1.16E-04	1.00	4	9	5.30E-05	1.57E-05	1.00	No
ICE, Diesel	PAH	Chrysene	lbs/Mgal	2	6	1.53E-04	1.39E-04	0.09	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	Chrysene	lbs/Mgal	2	6	1.53E-04	1.39E-04	0.09	4	9	5.30E-05	1.57E-05	1.00	Yes
ICE, Diesel	PAH	Chrysene	lbs/Mgal	3	3	3.39E-04	6.94E-05	1.00	4	9	5.30E-05	1.57E-05	1.00	Yes
ICE, Diesel	PAH	dibenz(a,h)anthracene	lbs/Mgal	1	6	2.43E-05	2.57E-05	0.00	2	6	1.40E-04	1.53E-04	0.00	No
ICE, Diesel	PAH	dibenz(a,h)anthracene	lbs/Mgal	1	6	2.43E-05	2.57E-05	0.00	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	dibenz(a,h)anthracene	lbs/Mgal	1	6	2.43E-05	2.57E-05	0.00	4	9	5.30E-05	1.57E-05	0.36	No
ICE, Diesel	PAH	dibenz(a,h)anthracene	lbs/Mgal	2	6	1.40E-04	1.53E-04	0.00	3	3	3.39E-04	6.94E-05	1.00	No
ICE, Diesel	PAH	dibenz(a,h)anthracene	lbs/Mgal	2	6	1.40E-04	1.53E-04	0.00	4	9	5.30E-05	1.57E-05	0.36	No
ICE, Diesel	PAH	dibenz(a,h)anthracene	lbs/Mgal	3	3	3.39E-04	6.94E-05	1.00	4	9	5.30E-05	1.57E-05	0.36	Yes
ICE, Diesel	PAH	Fluoranthene	lbs/Mgal	1	6	3.73E-04	2.02E-04	1.00	2	6	2.84E-04	2.40E-04	0.51	No
ICE, Diesel	PAH	Fluoranthene	lbs/Mgal	1	6	3.73E-04	2.02E-04	1.00	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	Fluoranthene	lbs/Mgal	1	6	3.73E-04	2.02E-04	1.00	4	9	5.30E-05	1.57E-05	0.36	Yes
ICE, Diesel	PAH	Fluoranthene	lbs/Mgal	2	6	2.84E-04	2.40E-04	0.51	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	Fluoranthene	lbs/Mgal	2	6	2.84E-04	2.40E-04	0.51	4	9	5.30E-05	1.57E-05	0.36	Yes
ICE, Diesel	PAH	Fluoranthene	lbs/Mgal	3	3	3.39E-04	6.94E-05	1.00	4	9	5.30E-05	1.57E-05	0.36	Yes
ICE, Diesel	PAH	Fluorene	lbs/Mgal	1	6	1.28E-03	5.42E-04	1.00	2	6	2.84E-04	2.40E-04	0.51	No
ICE, Diesel	PAH	Fluorene	lbs/Mgal	1	6	1.28E-03	5.42E-04	1.00	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	Fluorene	lbs/Mgal	1	6	1.28E-03	5.42E-04	1.00	4	9	5.30E-05	1.57E-05	0.36	Yes
ICE, Diesel	PAH	Fluorene	lbs/Mgal	2	6	6.49E-04	4.23E-04	0.78	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	Fluorene	lbs/Mgal	2	6	6.49E-04	4.23E-04	0.78	4	9	5.30E-05	1.57E-05	0.36	Yes
ICE, Diesel	PAH	Fluorene	lbs/Mgal	3	3	3.39E-04	6.94E-05	1.00	4	9	5.30E-05	1.57E-05	0.36	Yes
ICE, Diesel	PAH	Indeno(1,2,3-cd)pyrene	lbs/Mgal	1	6	2.89E-05	3.13E-05	0.34	2	6	1.40E-04	1.53E-04	0.00	No
ICE, Diesel	PAH	Indeno(1,2,3-cd)pyrene	lbs/Mgal	1	6	2.89E-05	3.13E-05	0.34	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	Indeno(1,2,3-cd)pyrene	lbs/Mgal	1	6	2.89E-05	3.13E-05	0.34	4	9	4.63E-05	5.05E-05	0.35	No
ICE, Diesel	PAH	Indeno(1,2,3-cd)pyrene	lbs/Mgal	2	6	1.40E-04	1.53E-04	0.00	3	3	3.39E-04	6.94E-05	1.00	No
ICE, Diesel	PAH	Indeno(1,2,3-cd)pyrene	lbs/Mgal	2	6	1.40E-04	1.53E-04	0.00	4	9	4.63E-05	5.05E-05	0.35	No
ICE, Diesel	PAH	Indeno(1,2,3-cd)pyrene	lbs/Mgal	3	3	3.39E-04	6.94E-05	1.00	4	9	4.63E-05	5.05E-05	0.35	Yes
ICE, Diesel	PAH	Naphthalene	lbs/Mgal	1	6	1.63E-02	2.43E-03	1.00	2	6	1.56E-02	1.41E-02	1.00	No
ICE, Diesel	PAH	Naphthalene	lbs/Mgal	1	6	1.63E-02	2.43E-03	1.00	3	3	3.39E-04	6.94E-05	1.00	No
ICE, Diesel	PAH	Naphthalene	lbs/Mgal	1	6	1.63E-02	2.43E-03	1.00	4	9	5.44E-02	6.50E-02	1.00	No
ICE, Diesel	PAH	Naphthalene	lbs/Mgal	2	6	1.56E-02	1.41E-02	1.00	3	3	3.39E-04	6.94E-05	1.00	No
ICE, Diesel	PAH	Naphthalene	lbs/Mgal	2	6	1.56E-02	1.41E-02	1.00	4	9	5.44E-02	6.50E-02	1.00	No
ICE, Diesel	PAH	Naphthalene	lbs/Mgal	3	3	3.39E-04	6.94E-05	1.00	4	9	5.44E-02	6.50E-02	1.00	No
ICE, Diesel	PAH	Phenanthrene	lbs/Mgal	1	6	3.96E-03	1.86E-03	1.00	2	6	3.11E-03	3.07E-03	1.00	No
ICE, Diesel	PAH	Phenanthrene	lbs/Mgal	1	6	3.96E-03	1.86E-03	1.00	3	3	3.39E-04	6.94E-05	1.00	Yes
ICE, Diesel	PAH	Phenanthrene	lbs/Mgal	1	6	3.96E-03	1.86E-03	1.00	4	9	9.47E-03	8.55E-03	1.00	Yes
ICE, Diesel	PAH	Phenanthrene	lbs/Mgal	2	6	3.11E-03	3.07E-03	1.00	3	3	3.39E-04	6.94E-05	1.00	No
ICE, Diesel	PAH	Phenanthrene	lbs/Mgal	2	6	3.11E-03	3.07E-03	1.00	4	9	9.47E-03	8.55E-03	1.00	Yes
ICE, Diesel	PAH	Phenanthrene	lbs/Mgal	3	3	3.39E-04	6.94E-05	1.00	4	9	9.47E-03	8.55E-03	1.00	No

TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95% Confidence		
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average		Standard Deviation	Detect Ratio*
ICE, Diesel	PAH	Pyrene	lbs/Mgal	1	6	2.90E-04	2.45E-04	1.00	2	6	2.37E-04	5.42E-05	0.41	No
ICE, Diesel	PAH	Pyrene	lbs/Mgal	1	6	2.90E-04	2.45E-04	1.00	3	3	7.49E-03	5.71E-04	1.00	Yes
ICE, Diesel	PAH	Pyrene	lbs/Mgal	1	6	2.90E-04	2.45E-04	1.00	4	3	4.03E-04	4.31E-04	1.00	Yes
ICE, Diesel	PAH	Pyrene	lbs/Mgal	2	6	2.37E-04	5.42E-05	0.41	3	3	3.49E-04	5.71E-04	1.00	Yes
ICE, Diesel	PAH	Pyrene	lbs/Mgal	2	6	2.37E-04	5.42E-05	0.41	4	3	4.22E-04	4.50E-04	1.00	Yes
ICE, Diesel	PAH	Pyrene	lbs/Mgal	3	3	2.61E-03	2.61E-03	1.00	4	9	9.02E-04	4.50E-04	1.00	Yes
ICE, Diesel	VOC	Acetaldehyde	lbs/Mgal	1	3	3.47E-03	2.61E-03	1.00	4	3	1.07E-01	4.20E-02	1.00	Yes
ICE, Diesel	VOC	Acrolein	lbs/Mgal	1	3	1.07E-03	6.19E-04	0.56	4	6	1.30E-02	9.64E-03	0.82	No
ICE, Diesel	VOC	Benzene	lbs/Mgal	1	3	1.01E-01	2.73E-03	1.00	2	3	3.25E-02	4.18E-03	1.00	Yes
ICE, Diesel	VOC	Benzene	lbs/Mgal	1	3	1.01E-01	2.73E-03	1.00	3	3	3.25E-02	4.18E-03	1.00	Yes
ICE, Diesel	VOC	Benzene	lbs/Mgal	2	3	1.01E-01	2.73E-03	1.00	4	6	1.22E-01	5.91E-02	1.00	No
ICE, Diesel	VOC	Benzene	lbs/Mgal	2	3	1.01E-01	2.73E-03	1.00	3	3	3.25E-02	4.18E-03	1.00	Yes
ICE, Diesel	VOC	Benzene	lbs/Mgal	2	3	1.01E-01	2.73E-03	1.00	4	6	1.22E-01	5.91E-02	1.00	Yes
ICE, Diesel	VOC	Benzene	lbs/Mgal	3	3	3.25E-02	4.18E-03	1.00	4	3	3.25E-02	4.18E-03	1.00	Yes
ICE, Diesel	VOC	Formaldehyde	lbs/Mgal	1	6	1.32E-02	9.31E-03	1.00	2	3	2.97E-01	4.54E-02	1.00	Yes
ICE, Diesel	VOC	Formaldehyde	lbs/Mgal	1	6	1.32E-02	9.31E-03	1.00	3	3	3.25E-02	4.18E-03	1.00	Yes
ICE, Diesel	VOC	Formaldehyde	lbs/Mgal	1	6	1.32E-02	9.31E-03	1.00	4	3	3.25E-02	4.18E-03	1.00	Yes
ICE, Diesel	VOC	Formaldehyde	lbs/Mgal	2	6	8.79E-02	6.83E-02	1.00	3	3	6.82E-02	4.59E-02	1.00	No
ICE, Diesel	VOC	Formaldehyde	lbs/Mgal	2	6	8.79E-02	6.83E-02	1.00	4	9	1.16E-01	1.04E-01	1.00	No
ICE, Diesel	VOC	Formaldehyde	lbs/Mgal	3	3	6.82E-02	4.59E-02	1.00	4	9	1.16E-01	1.04E-01	1.00	No
ICE, Diesel	VOC	Propylene	lbs/Mgal	1	3	3.85E-01	3.10E-02	1.00	2	3	2.97E-01	4.54E-02	1.00	No
ICE, Diesel	VOC	Propylene	lbs/Mgal	1	3	3.85E-01	3.10E-02	1.00	4	6	3.58E-01	2.03E-01	1.00	No
ICE, Diesel	VOC	Propylene	lbs/Mgal	2	3	2.97E-01	4.54E-02	1.00	4	6	3.58E-01	2.03E-01	1.00	No
ICE, Diesel	VOC	Toluene	lbs/Mgal	1	3	3.74E-02	1.22E-03	1.00	2	3	8.50E-02	2.38E-02	1.00	Yes
ICE, Diesel	VOC	Toluene	lbs/Mgal	1	3	3.74E-02	1.22E-03	1.00	4	6	5.50E-02	2.10E-02	1.00	No
ICE, Diesel	VOC	Toluene	lbs/Mgal	2	3	8.50E-02	2.38E-02	1.00	4	6	5.50E-02	2.10E-02	1.00	No
ICE, Diesel	VOC	Total Xylene	lbs/Mgal	1	3	2.68E-02	1.03E-03	1.00	2	3	1.51E-02	6.93E-03	1.00	Yes
ICE, Diesel	VOC	Total Xylene	lbs/Mgal	1	3	2.68E-02	1.03E-03	1.00	4	3	3.59E-02	1.48E-02	1.00	No
ICE, Diesel	VOC	Total Xylene	lbs/Mgal	2	3	1.51E-02	6.93E-03	1.00	4	3	3.59E-02	1.48E-02	1.00	No
ICE, Field Gas	VOC	Benzene	lbs/MMcf	1	6	1.72E+00	6.13E-01	1.00	2	3	1.31E+01	7.69E+01	1.00	Yes
ICE, Field Gas	VOC	Benzene	lbs/MMcf	1	6	1.72E+00	6.13E-01	1.00	4	3	1.07E+01	1.25E+01	1.00	Yes
ICE, Field Gas	VOC	Benzene	lbs/MMcf	1	6	1.72E+00	6.13E-01	1.00	5	3	1.07E+01	1.25E+01	1.00	Yes
ICE, Field Gas	VOC	Benzene	lbs/MMcf	2	2	1.31E+01	7.69E-01	1.00	4	2	1.10E+01	1.26E-01	1.00	No
ICE, Field Gas	VOC	Benzene	lbs/MMcf	2	2	1.31E+01	7.69E-01	1.00	5	3	4.39E+00	1.91E-01	1.00	Yes
ICE, Field Gas	VOC	Benzene	lbs/MMcf	4	2	1.31E+01	7.69E-01	1.00	5	3	4.39E+00	1.91E-01	1.00	Yes
ICE, Field Gas	VOC	Formaldehyde	lbs/MMcf	1	9	4.15E+01	3.18E+01	1.00	2	3	7.60E+01	8.20E+00	1.00	No
ICE, Field Gas	VOC	Formaldehyde	lbs/MMcf	1	9	4.15E+01	3.18E+01	1.00	4	3	5.05E+00	8.04E-01	1.00	No
ICE, Field Gas	VOC	Formaldehyde	lbs/MMcf	1	9	4.15E+01	3.18E+01	1.00	5	3	2.58E+01	3.46E+01	1.00	No
ICE, Field Gas	VOC	Formaldehyde	lbs/MMcf	2	3	7.60E+01	8.20E+00	1.00	4	3	5.05E+00	8.04E-01	1.00	Yes
ICE, Field Gas	VOC	Formaldehyde	lbs/MMcf	2	3	7.60E+01	8.20E+00	1.00	5	3	2.58E+01	3.46E+01	1.00	No
ICE, Field Gas	VOC	Formaldehyde	lbs/MMcf	4	3	5.05E+00	8.04E-01	1.00	5	3	2.58E+01	3.46E+01	1.00	No
ICE, Field Gas	VOC	m,p-xylene	lbs/MMcf	1	6	3.02E-01	3.01E-01	1.00	2	3	1.03E+00	1.03E+00	1.00	Yes
ICE, Field Gas	VOC	m,p-xylene	lbs/MMcf	1	6	3.02E-01	3.01E-01	1.00	4	2	5.37E-01	3.62E-02	1.00	No
ICE, Field Gas	VOC	m,p-xylene	lbs/MMcf	1	6	3.02E-01	3.01E-01	1.00	5	3	2.54E-01	6.43E-02	1.00	No
ICE, Field Gas	VOC	m,p-xylene	lbs/MMcf	2	3	3.02E-01	3.01E-01	1.00	4	2	5.37E-01	3.62E-02	1.00	Yes
ICE, Field Gas	VOC	m,p-xylene	lbs/MMcf	2	3	3.02E-01	3.01E-01	1.00	5	3	2.54E-01	6.43E-02	1.00	Yes
ICE, Field Gas	VOC	m,p-xylene	lbs/MMcf	3	3	3.02E-01	3.01E-01	1.00	5	3	2.54E-01	6.43E-02	1.00	Yes
ICE, Field Gas	VOC	o-xylene	lbs/MMcf	1	6	8.97E-02	2.30E-02	1.00	2	3	2.54E-01	6.43E-02	1.00	Yes
ICE, Field Gas	VOC	o-xylene	lbs/MMcf	1	6	8.97E-02	2.30E-02	1.00	4	3	1.03E-01	3.41E-02	1.00	No
ICE, Field Gas	VOC	o-xylene	lbs/MMcf	1	6	8.97E-02	2.30E-02	1.00	5	3	2.68E-01	1.81E-02	1.00	Yes
ICE, Field Gas	VOC	o-xylene	lbs/MMcf	2	3	8.97E-02	2.30E-02	1.00	4	2	2.68E-01	1.81E-02	1.00	Yes

TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95% Confidence
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average	
ICE, Field Gas	VOC	o-xylene	lbs/MMcf	2	1.59E-01	4.86E+00	1.00	5	1.03E-01	3.41E-02	1.00	Yes
ICE, Field Gas	VOC	o-xylene	lbs/MMcf	2	1.59E-01	4.86E+00	1.00	5	1.03E-01	3.41E-02	1.00	Yes
ICE, Field Gas	VOC	Propylene	lbs/MMcf	1	1.59E-01	4.86E+00	1.00	2	1.03E-01	3.41E-02	1.00	Yes
ICE, Field Gas	VOC	Propylene	lbs/MMcf	1	1.59E-01	4.86E+00	1.00	2	1.03E-01	3.41E-02	1.00	Yes
ICE, Field Gas	VOC	Propylene	lbs/MMcf	2	4.02E+01	0.00E+00	1.00	4	3.04E+00	0.00E+00	0.00	Yes
ICE, Field Gas	VOC	Propylene	lbs/MMcf	2	4.02E+01	0.00E+00	1.00	4	3.04E+00	0.00E+00	0.00	Yes
ICE, Field Gas	VOC	Propylene	lbs/MMcf	2	4.02E+01	0.00E+00	1.00	4	3.04E+00	0.00E+00	0.00	Yes
ICE, Field Gas	VOC	Propylene	lbs/MMcf	4	3.04E+00	0.00E+00	0.00	5	1.47E+01	3.16E+00	1.00	Yes
ICE, Field Gas	VOC	Toluene	lbs/MMcf	1	7.68E-01	3.92E-01	1.00	5	1.47E+01	3.16E+00	1.00	Yes
ICE, Field Gas	VOC	Toluene	lbs/MMcf	1	7.68E-01	3.92E-01	1.00	5	1.47E+01	3.16E+00	1.00	Yes
ICE, Field Gas	VOC	Toluene	lbs/MMcf	1	7.68E-01	3.92E-01	1.00	5	1.47E+01	3.16E+00	1.00	Yes
ICE, Field Gas	VOC	Toluene	lbs/MMcf	2	4.83E+00	1.29E+00	1.00	4	3.44E+00	1.15E+00	1.00	No
ICE, Field Gas	VOC	Toluene	lbs/MMcf	2	4.83E+00	1.29E+00	1.00	4	3.44E+00	1.15E+00	1.00	No
ICE, Field Gas	VOC	Toluene	lbs/MMcf	4	3.44E+00	1.57E-01	1.00	5	1.54E+00	1.57E-01	1.00	No
ICE, Natural Gas	PAH	Acenaphthene	lbs/MMcf	1	7.17E-04	2.14E-04	1.00	2	1.94E-03	1.26E-03	1.00	No
ICE, Natural Gas	PAH	Acenaphthene	lbs/MMcf	1	7.17E-04	2.14E-04	1.00	2	1.94E-03	1.26E-03	1.00	No
ICE, Natural Gas	PAH	Acenaphthene	lbs/MMcf	1	7.17E-04	2.14E-04	1.00	2	1.94E-03	1.26E-03	1.00	No
ICE, Natural Gas	PAH	Acenaphthene	lbs/MMcf	3	7.59E-03	3.15E-03	1.00	3	1.51E-04	5.09E-05	1.00	Yes
ICE, Natural Gas	PAH	Acenaphthene	lbs/MMcf	3	7.59E-03	3.15E-03	1.00	3	1.51E-04	5.09E-05	1.00	Yes
ICE, Natural Gas	PAH	Acenaphthene	lbs/MMcf	3	7.59E-03	3.15E-03	1.00	3	1.51E-04	5.09E-05	1.00	Yes
ICE, Natural Gas	PAH	Acenaphthylene	lbs/MMcf	1	2.56E-04	1.06E-04	1.00	3	5.25E-04	1.25E-04	1.00	Yes
ICE, Natural Gas	PAH	Acenaphthylene	lbs/MMcf	1	2.56E-04	1.06E-04	1.00	3	5.25E-04	1.25E-04	1.00	Yes
ICE, Natural Gas	PAH	Acenaphthylene	lbs/MMcf	1	2.56E-04	1.06E-04	1.00	3	5.25E-04	1.25E-04	1.00	Yes
ICE, Natural Gas	PAH	Anthracene	lbs/MMcf	1	7.78E-05	1.84E-05	1.00	3	1.19E-04	3.91E-05	1.00	Yes
ICE, Natural Gas	PAH	Anthracene	lbs/MMcf	1	7.78E-05	1.84E-05	1.00	3	1.19E-04	3.91E-05	1.00	Yes
ICE, Natural Gas	PAH	Anthracene	lbs/MMcf	1	7.78E-05	1.84E-05	1.00	3	1.19E-04	3.91E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	1	7.78E-05	1.84E-05	1.00	3	1.19E-04	3.91E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	2	3.44E-04	1.15E-04	1.00	3	5.88E-05	3.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	2	3.44E-04	1.15E-04	1.00	3	5.88E-05	3.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	1	3.55E-05	1.42E-05	0.76	2	1.15E-04	3.16E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	1	3.55E-05	1.42E-05	0.76	2	1.15E-04	3.16E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	2	1.15E-04	3.16E-05	1.00	3	5.88E-05	3.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	2	1.15E-04	3.16E-05	1.00	3	5.88E-05	3.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	1	3.27E-04	5.22E-04	0.95	2	2.37E-04	5.53E-05	1.00	No
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	1	3.27E-04	5.22E-04	0.95	2	2.37E-04	5.53E-05	1.00	No
ICE, Natural Gas	PAH	Benzo(a)anthracene	lbs/MMcf	1	3.27E-04	5.22E-04	0.95	2	2.37E-04	5.53E-05	1.00	No
ICE, Natural Gas	PAH	Benzo(b)fluoranthene	lbs/MMcf	2	1.03E-04	1.35E-04	1.00	3	4.09E-05	2.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(b)fluoranthene	lbs/MMcf	2	1.03E-04	1.35E-04	1.00	3	4.09E-05	2.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(b)fluoranthene	lbs/MMcf	1	1.03E-04	1.35E-04	1.00	3	4.09E-05	2.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(g,h,i)perylene	lbs/MMcf	1	1.03E-04	1.35E-04	1.00	3	4.09E-05	2.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(g,h,i)perylene	lbs/MMcf	1	1.03E-04	1.35E-04	1.00	3	4.09E-05	2.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(g,h,i)perylene	lbs/MMcf	2	1.03E-04	1.35E-04	1.00	3	4.09E-05	2.32E-05	1.00	Yes
ICE, Natural Gas	PAH	Benzo(k)fluoranthene	lbs/MMcf	1	5.30E-04	5.21E-04	0.98	2	1.03E-04	2.07E-05	1.00	No
ICE, Natural Gas	PAH	Benzo(k)fluoranthene	lbs/MMcf	1	5.30E-04	5.21E-04	0.98	2	1.03E-04	2.07E-05	1.00	No
ICE, Natural Gas	PAH	Benzo(k)fluoranthene	lbs/MMcf	1	5.30E-04	5.21E-04	0.98	2	1.03E-04	2.07E-05	1.00	No
ICE, Natural Gas	PAH	Chrysene	lbs/MMcf	1	9.64E-05	2.63E-05	1.00	3	7.83E-06	3.54E-06	0.93	Yes
ICE, Natural Gas	PAH	Chrysene	lbs/MMcf	1	9.64E-05	2.63E-05	1.00	3	7.83E-06	3.54E-06	0.93	Yes
ICE, Natural Gas	PAH	Chrysene	lbs/MMcf	1	9.64E-05	2.63E-05	1.00	3	7.83E-06	3.54E-06	0.93	Yes
ICE, Natural Gas	PAH	Chrysene	lbs/MMcf	3	1.09E-05	3.86E-06	1.00	6	1.43E-05	7.20E-06	0.96	Yes
ICE, Natural Gas	PAH	Chrysene	lbs/MMcf	3	1.09E-05	3.86E-06	1.00	6	1.43E-05	7.20E-06	0.96	Yes
ICE, Natural Gas	PAH	dibenz(a,h)anthracene	lbs/MMcf	1	2.50E-04	9.05E-05	1.00	3	2.91E-04	1.46E-04	1.00	No
ICE, Natural Gas	PAH	dibenz(a,h)anthracene	lbs/MMcf	1	2.50E-04	9.05E-05	1.00	3	2.91E-04	1.46E-04	1.00	No
ICE, Natural Gas	PAH	dibenz(a,h)anthracene	lbs/MMcf	3	2.50E-04	9.05E-05	1.00	6	2.91E-04	1.46E-04	1.00	Yes
ICE, Natural Gas	PAH	dibenz(a,h)anthracene	lbs/MMcf	3	2.50E-04	9.05E-05	1.00	6	2.91E-04	1.46E-04	1.00	Yes
ICE, Natural Gas	PAH	Fluoranthene	lbs/MMcf	1	4.60E-04	1.50E-04	0.00	3	4.36E-04	2.53E-04	1.00	Yes
ICE, Natural Gas	PAH	Fluoranthene	lbs/MMcf	1	4.60E-04	1.50E-04	0.00	3	4.36E-04	2.53E-04	1.00	Yes
ICE, Natural Gas	PAH	Fluoranthene	lbs/MMcf	1	4.60E-04	1.50E-04	0.00	3	4.36E-04	2.53E-04	1.00	Yes
ICE, Natural Gas	PAH	Fluorene	lbs/MMcf	1	1.20E-04	1.52E-04	1.00	2	1.69E-04	3.43E-05	1.00	No
ICE, Natural Gas	PAH	Fluorene	lbs/MMcf	1	1.20E-04	1.52E-04	1.00	2	1.69E-04	3.43E-05	1.00	No
ICE, Natural Gas	PAH	Indeno(1,2,3-cd)pyrene	lbs/MMcf	1	1.20E-04	1.52E-04	1.00	2	1.69E-04	3.43E-05	1.00	No

TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95% Confidence	
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average		Standard Deviation
ICE, Natural Gas	PAH	Indeno(1,2,3-cd)pyrene	lbs/MMcf	1	3	1.20E-04	1.52E-04	1.00	3	7.17E-06	3.12E-06	0.96	No
ICE, Natural Gas	PAH	Indeno(1,2,3-cd)pyrene	lbs/MMcf	2	3	8.93E-04	2.43E-04	1.00	3	7.17E-06	3.12E-06	0.96	Yes
ICE, Natural Gas	PAH	Naphthalene	lbs/MMcf	1	3	1.22E-01	8.93E-02	1.00	2	7.65E-02	1.58E-02	1.00	No
ICE, Natural Gas	PAH	Naphthalene	lbs/MMcf	2	3	1.22E-01	8.93E-02	1.00	3	2.51E-02	4.56E-03	1.00	Yes
ICE, Natural Gas	PAH	Phenanthrene	lbs/MMcf	1	3	8.93E-04	3.36E-04	1.00	3	7.65E-02	1.58E-02	1.00	Yes
ICE, Natural Gas	PAH	Phenanthrene	lbs/MMcf	2	3	8.93E-04	3.36E-04	1.00	3	1.85E-03	6.89E-04	1.00	Yes
ICE, Natural Gas	PAH	Phenanthrene	lbs/MMcf	3	3	8.93E-04	3.36E-04	1.00	3	1.85E-03	6.89E-04	1.00	Yes
ICE, Natural Gas	PAH	Pyrene	lbs/MMcf	1	3	1.23E-04	5.07E-05	1.00	3	1.87E-04	9.30E-05	1.00	No
ICE, Natural Gas	PAH	Pyrene	lbs/MMcf	2	3	1.23E-04	5.07E-05	1.00	3	1.87E-04	9.30E-05	1.00	Yes
ICE, Natural Gas	PAH	Pyrene	lbs/MMcf	3	3	1.23E-04	5.07E-05	1.00	3	1.87E-04	9.30E-05	1.00	Yes
ICE, Natural Gas	SVOC	Ethylbenzene	lbs/MMcf	2	3	1.16E-02	3.13E-03	1.00	3	1.87E-04	9.30E-05	1.00	Yes
ICE, Natural Gas	VOC	1,3-Butadiene	lbs/MMcf	2	3	1.04E-01	3.92E-04	1.00	3	1.87E-04	9.30E-05	1.00	Yes
ICE, Natural Gas	VOC	Acetaldehyde	lbs/MMcf	1	3	8.83E-01	9.05E-01	1.00	2	8.83E-01	9.05E-01	1.00	Yes
ICE, Natural Gas	VOC	Acetaldehyde	lbs/MMcf	2	3	8.83E-01	9.05E-01	1.00	3	5.29E-01	1.04E+00	0.96	Yes
ICE, Natural Gas	VOC	Acetaldehyde	lbs/MMcf	3	3	8.83E-01	9.05E-01	1.00	3	5.29E-01	1.04E+00	0.96	Yes
ICE, Natural Gas	VOC	Acrolein	lbs/MMcf	1	14	1.63E+00	1.50E+00	1.00	2	7.94E-01	3.38E-01	1.00	No
ICE, Natural Gas	VOC	Acrolein	lbs/MMcf	2	14	1.63E+00	1.50E+00	1.00	3	5.90E-02	5.20E-02	0.45	Yes
ICE, Natural Gas	VOC	Acrolein	lbs/MMcf	3	14	1.63E+00	1.50E+00	1.00	3	5.90E-02	5.20E-02	0.45	Yes
ICE, Natural Gas	VOC	Benzene	lbs/MMcf	1	14	1.21E+00	5.70E-01	1.00	2	1.91E+00	3.94E+00	1.00	No
ICE, Natural Gas	VOC	Benzene	lbs/MMcf	2	14	1.21E+00	5.70E-01	1.00	3	2.18E-01	2.66E-02	1.00	Yes
ICE, Natural Gas	VOC	Benzene	lbs/MMcf	3	14	1.21E+00	5.70E-01	1.00	3	2.18E-01	2.66E-02	1.00	Yes
ICE, Natural Gas	VOC	Formaldehyde	lbs/MMcf	1	31	2.80E+00	4.47E+00	1.00	2	2.80E+00	4.47E+00	1.00	Yes
ICE, Natural Gas	VOC	Formaldehyde	lbs/MMcf	2	31	2.80E+00	4.47E+00	1.00	3	4.71E+00	7.43E+00	0.97	Yes
ICE, Natural Gas	VOC	Formaldehyde	lbs/MMcf	3	31	2.80E+00	4.47E+00	1.00	4	5.15E+00	7.50E+00	0.91	Yes
ICE, Natural Gas	VOC	Formaldehyde	lbs/MMcf	1	12	2.80E+00	4.47E+00	1.00	3	4.71E+00	7.43E+00	0.97	No
ICE, Natural Gas	VOC	Formaldehyde	lbs/MMcf	2	12	2.80E+00	4.47E+00	1.00	4	5.15E+00	7.50E+00	0.91	No
ICE, Natural Gas	VOC	Formaldehyde	lbs/MMcf	3	9	4.71E+00	7.43E+00	0.97	4	5.15E+00	7.50E+00	0.91	No
ICE, Natural Gas	VOC	m,p-xylene	lbs/MMcf	1	14	8.63E-02	3.99E-02	1.00	2	4.11E-01	1.71E-01	1.00	Yes
ICE, Natural Gas	VOC	m,p-xylene	lbs/MMcf	2	14	8.63E-02	3.99E-02	1.00	3	4.11E-01	1.71E-01	1.00	Yes
ICE, Natural Gas	VOC	m,p-xylene	lbs/MMcf	3	14	8.63E-02	3.99E-02	1.00	3	4.11E-01	1.71E-01	1.00	Yes
ICE, Natural Gas	VOC	Propylene	lbs/MMcf	1	14	1.87E+01	2.04E+01	0.97	2	1.60E+01	2.15E+01	1.00	No
ICE, Natural Gas	VOC	Propylene	lbs/MMcf	2	14	1.87E+01	2.04E+01	0.97	3	5.38E+00	3.30E+00	1.00	No
ICE, Natural Gas	VOC	Propylene	lbs/MMcf	3	5	1.60E+01	2.15E+01	1.00	6	5.38E+00	3.30E+00	1.00	No
ICE, Natural Gas	VOC	Toluene	lbs/MMcf	1	14	4.12E-01	1.40E-01	1.00	2	1.07E+00	1.32E+00	1.00	No
ICE, Natural Gas	VOC	Toluene	lbs/MMcf	2	14	4.12E-01	1.40E-01	1.00	3	2.39E-01	1.12E-01	1.00	Yes
ICE, Natural Gas	VOC	Toluene	lbs/MMcf	3	5	1.07E+00	1.32E+00	1.00	3	2.39E-01	1.12E-01	1.00	No
ICE, Natural Gas	VOC	Total Xylene	lbs/MMcf	2	3	6.02E-02	1.86E-02	1.00	3	2.39E-01	1.12E-01	1.00	Yes
Plating, Anodizing	Metals	Chromium	mg/amp-hr	1	3	8.72E-03	1.57E-03	1.00	2	4.14E-03	2.08E-04	0.00	Yes
Plating, Anodizing	Metals	Chromium (Hex)	mg/amp-hr	1	3	8.72E-03	1.57E-03	1.00	2	4.14E-03	2.08E-04	0.00	Yes
Plating, Hard	Metals	Chromium	mg/amp-hr	1	3	8.72E-03	1.57E-03	1.00	2	4.14E-03	2.08E-04	0.00	Yes
Plating, Hard	Metals	Chromium	mg/amp-hr	2	3	8.72E-03	1.57E-03	1.00	2	4.14E-03	2.08E-04	0.00	Yes
Plating, Hard	Metals	Chromium (Hex)	mg/amp-hr	2	3	8.72E-03	1.57E-03	1.00	2	4.14E-03	2.08E-04	0.00	Yes
Turbine, Distillate	PAH	Acenaphthene	lbs/Mgal	1	9	9.69E-05	1.16E-04	0.12	2	1.82E-05	2.03E-05	0.76	No
Turbine, Distillate	PAH	Acenaphthene	lbs/Mgal	2	9	9.69E-05	1.16E-04	0.12	2	1.82E-05	2.03E-05	0.76	No
Turbine, Distillate	PAH	Acenaphthylene	lbs/Mgal	1	9	8.61E-05	1.22E-04	0.06	2	6.32E-06	7.79E-06	0.59	No
Turbine, Distillate	PAH	Acenaphthylene	lbs/Mgal	2	9	8.61E-05	1.22E-04	0.06	2	6.32E-06	7.79E-06	0.59	No
Turbine, Distillate	PAH	Benzo(a)anthracene	lbs/Mgal	1	9	8.53E-05	1.23E-04	0.01	2	1.56E-05	1.83E-05	0.32	No
Turbine, Distillate	PAH	Benzo(a)anthracene	lbs/Mgal	2	9	8.53E-05	1.23E-04	0.01	2	1.56E-05	1.83E-05	0.32	No
Turbine, Distillate	PAH	Benzo(a)pyrene	lbs/Mgal	1	9	8.33E-05	1.24E-04	0.01	2	4.22E-06	2.93E-06	0.00	No
Turbine, Distillate	PAH	Benzo(a)pyrene	lbs/Mgal	2	9	8.33E-05	1.24E-04	0.01	2	4.22E-06	2.93E-06	0.00	No
Turbine, Distillate	PAH	Benzo(b)fluoranthene	lbs/Mgal	1	6	1.32E-04	1.29E-04	0.08	2	8.61E-06	1.01E-05	0.56	No
Turbine, Distillate	PAH	Benzo(b)fluoranthene	lbs/Mgal	2	6	1.32E-04	1.29E-04	0.08	2	8.61E-06	1.01E-05	0.56	No
Turbine, Distillate	PAH	Benzo(k)fluoranthene	lbs/Mgal	1	3	2.52E-06	6.60E-08	0.00	2	3.23E-06	3.82E-07	0.00	Yes
Turbine, Distillate	PAH	Benzo(k)fluoranthene	lbs/Mgal	2	3	2.52E-06	6.60E-08	0.00	2	3.23E-06	3.82E-07	0.00	Yes
Turbine, Distillate	PAH	Benzo(g,h,i)perylene	lbs/Mgal	1	9	8.26E-05	1.23E-04	0.01	2	6.21E-06	4.04E-06	0.00	No
Turbine, Distillate	PAH	Benzo(g,h,i)perylene	lbs/Mgal	2	6	1.30E-04	1.31E-04	0.07	2	6.21E-06	4.04E-06	0.00	No
Turbine, Distillate	PAH	Chrysene	lbs/Mgal	1	9	1.03E-04	1.15E-04	0.21	2	4.82E-06	2.70E-06	0.00	No

TABLE 19. EMISSION FACTOR GROUP COMPARISON (t-statistics).

Major Group	Category	Substance	Unit	First Sample Statistics				Second Sample Statistics				Significant Difference at 95% Confidence		
				Description Sub Group	Size	Average	Standard Deviation	Detect Ratio*	Description Sub Group	Size	Average		Standard Deviation	Detect Ratio*
Turbine, Distillate	PAH	dibenz(a,h)anthracene	lbs/Mgal	1	9	8.25E-05	1.25E-04	0.01	2	6	2.30E-06	1.19E-06	0.00	No
Turbine, Distillate	PAH	Fluoranthene	lbs/Mgal	1	9	8.25E-05	1.25E-04	0.01	2	6	1.34E-05	1.16E-05	0.88	Yes
Turbine, Distillate	PAH	Fluorene	lbs/Mgal	1	9	8.25E-05	1.25E-04	0.01	2	6	1.76E-05	1.22E-05	0.21	Yes
Turbine, Distillate	PAH	Indeno(1,2,3-cd)pyrene	lbs/Mgal	1	9	8.26E-05	1.24E-04	0.01	2	6	2.29E-06	1.22E-06	0.00	No
Turbine, Distillate	PAH	Naphthalene	lbs/Mgal	1	9	8.26E-05	1.24E-04	0.01	2	6	3.87E-04	1.08E-04	1.00	Yes
Turbine, Distillate	PAH	Phenanthrene	lbs/Mgal	1	9	4.12E-04	6.40E-04	1.00	2	6	6.91E-05	5.97E-05	1.00	No
Turbine, Distillate	PAH	Pyrene	lbs/Mgal	1	9	1.01E-04	1.15E-04	0.20	2	6	1.44E-05	1.40E-05	0.89	No
Turbine, Distillate	VOC	Formaldehyde	lbs/Mgal	1	6	3.19E-02	2.66E-02	1.00	2	6	7.05E-02	6.83E-02	1.00	No
Turbine, Neutral Gas	VOC	Formaldehyde	lbs/MMcf	1	19	1.10E-01	1.06E-01	1.00	2	19	1.10E-01	1.06E-01	0.97	Yes

\* Detect Ratio - Ratio of the sum of detected values to the sum of detected and nondetected values.

TABLE 20. SUBSTANCE SPECIFIC UNCERTAINTY AND RELATIVE STANDARD DEVIATION (a).

Category	Substance	Relative Standard Deviation, %			Uncertainty, %		
		Mean	Minimum	Maximum	Mean	Minimum	Maximum
Dioxin/Furan	4D 2378	44.62	7.73	97.77	42.26	8.75	93.06
Dioxin/Furan	4D Other	96.53	96.53	96.53	109.23	109.23	109.23
Dioxin/Furan	4D Total	86.62	7.73	136.40	83.74	8.75	154.34
Dioxin/Furan	4F 2378	73.75	7.73	171.19	72.03	8.75	193.71
Dioxin/Furan	4F Other	47.70	47.70	47.70	53.98	53.98	53.98
Dioxin/Furan	4F Total	84.60	7.73	162.81	82.73	8.75	184.23
Dioxin/Furan	5D 12378	60.65	7.73	142.30	60.70	8.75	161.02
Dioxin/Furan	5D Other	23.10	23.10	23.10	26.14	26.14	26.14
Dioxin/Furan	5D Total	103.51	7.73	234.95	94.65	8.75	181.77
Dioxin/Furan	5F 12378	66.09	7.73	176.54	61.24	8.75	185.80
Dioxin/Furan	5F 23478	73.14	23.87	168.14	68.64	27.01	190.26
Dioxin/Furan	5F Other	42.57	42.57	42.57	48.17	48.17	48.17
Dioxin/Furan	5F Total	80.80	7.73	158.43	75.62	8.75	179.27
Dioxin/Furan	6D 123478	78.64	11.17	228.39	72.42	12.64	156.28
Dioxin/Furan	6D 123678	62.67	7.73	147.43	63.53	8.75	166.83
Dioxin/Furan	6D 123789	81.16	17.34	228.54	74.71	19.63	177.75
Dioxin/Furan	6D Other	44.09	44.09	44.09	49.89	49.89	49.89
Dioxin/Furan	6D Total	90.18	7.73	192.58	82.62	8.75	143.91
Dioxin/Furan	6F 123478	77.65	12.27	171.12	72.85	13.89	192.20
Dioxin/Furan	6F 123678	65.14	4.51	166.91	60.80	5.10	188.87
Dioxin/Furan	6F 123789	65.86	24.71	174.85	61.33	27.96	107.26
Dioxin/Furan	6F 234678	72.95	2.55	158.52	69.51	2.88	179.38
Dioxin/Furan	6F Other	49.18	49.18	49.18	55.66	55.66	55.66
Dioxin/Furan	6F Total	79.81	7.73	163.39	72.14	8.75	170.94
Dioxin/Furan	7D 1234678	55.08	2.98	127.05	52.43	3.37	143.76
Dioxin/Furan	7D Other	38.24	38.24	38.24	43.27	43.27	43.27
Dioxin/Furan	7D Total	52.68	7.73	142.09	44.30	8.75	81.19
Dioxin/Furan	7F 1234678	62.79	7.73	165.30	59.45	8.75	187.05
Dioxin/Furan	7F 1234789	74.70	17.09	195.12	69.92	19.33	123.59
Dioxin/Furan	7F Other	0.00	0.00	0.00	0.00	0.00	0.00
Dioxin/Furan	7F Total	65.39	7.73	167.80	56.63	8.75	134.89
Dioxin/Furan	8D	46.12	7.73	156.83	41.48	8.75	79.36
Dioxin/Furan	8F	76.59	7.73	215.22	72.76	8.75	141.57
Halogens	HCl	32.65	0.00	70.28	30.00	0.00	79.47
Halogens	HF	59.77	31.61	87.92	47.83	25.30	70.35
Metals	Aluminum	162.18	162.18	162.18	183.52	183.52	183.52
Metals	Antimony	18.73	2.27	66.08	15.72	2.57	52.88
Metals	Arsenic	51.15	0.00	149.64	43.62	0.00	169.33
Metals	Barium	41.41	4.86	76.27	40.54	5.50	64.50
Metals	Beryllium	40.68	0.00	234.33	30.77	0.00	149.53
Metals	Cadmium	68.72	0.00	306.29	61.98	0.00	148.97
Metals	Chromium	42.19	0.00	153.73	39.00	0.00	117.96
Metals	Chromium (Hex)	38.83	0.00	152.85	34.96	0.00	109.08
Metals	Cobalt	55.77	55.77	55.77	63.11	63.11	63.11
Metals	Copper	44.38	0.00	103.88	41.88	0.00	117.36
Metals	Iron	38.81	38.81	38.81	43.91	43.91	43.91
Metals	Lead	55.49	0.00	208.41	47.37	0.00	140.33

TABLE 20. SUBSTANCE SPECIFIC UNCERTAINTY AND RELATIVE STANDARD DEVIATION (a).

Category	Substance	Relative Standard Deviation, %			Uncertainty, %		
		Mean	Minimum	Maximum	Mean	Minimum	Maximum
Metals	Manganese	86.73	0.00	406.64	71.72	0.00	192.17
Metals	Mercury	62.93	0.00	177.33	54.01	0.00	138.71
Metals	Molybdenum	32.98	32.98	32.98	37.32	37.32	37.32
Metals	Nickel	55.81	0.00	207.41	50.58	0.00	188.32
Metals	Phosphorus	40.94	3.35	101.41	40.73	3.80	87.07
Metals	Selenium	48.35	0.00	277.17	34.09	0.00	118.54
Metals	Silver	24.83	2.27	89.08	20.72	2.57	71.27
Metals	Strontium	2.51	2.51	2.51	2.84	2.84	2.84
Metals	Thallium	27.26	3.04	78.56	24.33	3.44	62.86
Metals	Vanadium	60.74	60.74	60.74	68.73	68.73	68.73
Metals	Zinc	67.17	0.00	248.53	58.49	0.00	161.56
PAH	Acenaphthene	77.97	0.00	215.25	63.56	0.00	187.34
PAH	Acenaphthylene	84.47	0.00	223.79	71.56	0.00	188.62
PAH	Anthracene	66.06	0.00	216.17	54.24	0.00	193.98
PAH	Benzo(a)anthracene	61.79	0.00	219.85	46.88	0.00	187.35
PAH	Benzo(a)pyrene	58.62	0.00	195.87	47.85	0.00	147.52
PAH	Benzo(b)fluoranthene	68.59	0.00	174.76	61.67	0.00	180.94
PAH	Benzo(b+k)fluoranthene	38.40	1.90	99.78	27.76	2.14	64.02
PAH	Benzo(e)pyrene	48.19	9.79	129.80	51.54	11.08	146.88
PAH	Benzo(g,h,i)perylene	60.50	0.00	217.33	48.95	0.00	159.04
PAH	Benzo(k)fluoranthene	66.08	0.00	269.37	56.01	0.00	137.51
PAH	Chrysene	59.32	0.00	215.17	46.61	0.00	158.12
PAH	Fluoranthene	61.38	0.00	258.95	47.30	0.00	169.17
PAH	Fluorene	65.68	0.00	198.01	55.99	0.00	174.80
PAH	Indeno(1,2,3-cd)pyrene	59.28	0.00	215.85	46.95	0.00	179.59
PAH	Naphthalene	69.98	0.00	246.24	54.77	0.00	164.21
PAH	Phenanthrene	66.09	0.00	208.44	52.80	0.00	140.04
PAH	Pyrene	68.34	0.00	276.89	54.24	0.00	180.90
PAH	dibenz(a,h)anthracene	53.01	0.00	216.23	40.75	0.00	185.78
PCB	Decachlorinated biphenyls	16.90	3.02	32.23	19.12	3.42	36.48
PCB	Dichlorinated biphenyls	30.76	3.02	57.80	34.81	3.42	65.41
PCB	Heptachlorinated biphenyls	20.30	3.02	46.61	22.97	3.42	52.74
PCB	Hexachlorinated biphenyls	24.07	4.02	47.49	27.24	4.55	53.74
PCB	Monochlorinated biphenyls	12.76	3.02	22.63	14.44	3.42	25.61
PCB	Nonachlorinated biphenyls	16.40	3.02	33.52	18.56	3.42	37.93
PCB	Octachlorinated biphenyls	22.26	3.02	40.88	25.19	3.42	46.26
PCB	Pentachlorinated biphenyls	19.89	3.02	41.66	22.51	3.42	47.15
PCB	Tetrachlorinated biphenyls	20.82	3.02	32.51	23.56	3.42	36.78
PCB	Trichlorinated biphenyls	14.83	3.02	26.68	16.79	3.42	30.20
Particulate	Particulate	70.16	59.15	81.16	65.94	64.94	66.93
SVOC	2-Chloronaphthalene	71.26	2.15	172.55	75.09	2.98	195.25
SVOC	2-Methylnaphthalene	54.16	3.50	137.05	56.45	3.96	155.09
SVOC	Benzaldehyde	29.96	6.29	63.37	33.90	7.12	71.71
SVOC	Ethylbenzene	39.20	0.00	158.91	39.01	0.00	179.82
SVOC	Perylene	71.98	3.50	206.85	72.02	3.96	165.51
SVOC	Phenol	7.07	0.00	24.34	8.00	0.00	27.54
VOC	1,1,1-Trichloroethane	34.12	0.90	80.11	29.76	1.02	64.10

TABLE 20. SUBSTANCE SPECIFIC UNCERTAINTY AND RELATIVE STANDARD DEVIATION (a).

Category	Substance	Relative Standard Deviation, %			Uncertainty, %		
		Mean	Minimum	Maximum	Mean	Minimum	Maximum
VOC	1,2-Dibromoethane	1.55	1.55	1.55	1.24	1.24	1.24
VOC	1,2-Dichloroethane	1.55	1.55	1.55	1.24	1.24	1.24
VOC	1,3-Butadiene	4.14	0.00	14.32	4.69	0.00	16.20
VOC	Acetaldehyde	46.91	0.00	135.51	43.67	0.00	153.34
VOC	Acrolein	47.85	0.95	108.34	40.67	1.07	120.84
VOC	Ammonia	14.28	3.67	24.88	16.16	4.16	28.16
VOC	Benzene	29.21	0.00	206.43	24.15	0.00	123.50
VOC	Carbon Tetrachloride	1.55	1.55	1.55	1.24	1.24	1.24
VOC	Chloroform	20.38	1.55	73.63	22.93	1.24	83.32
VOC	Formaldehyde	62.34	0.00	211.95	48.74	0.00	151.79
VOC	Hexane	41.69	41.69	41.69	47.17	47.17	47.17
VOC	Hydrogen Sulfide	11.58	0.00	51.99	13.10	0.00	58.83
VOC	Methylene Chloride	69.24	50.21	88.27	63.72	56.81	70.63
VOC	Propylene	37.91	0.00	145.15	31.13	0.00	117.66
VOC	Propylene Oxide	20.56	20.56	20.56	23.26	23.26	23.26
VOC	Styrene	61.16	0.00	169.06	62.23	0.00	191.31
VOC	Tetrachloroethene	1.23	0.90	1.55	1.13	1.02	1.24
VOC	Toluene	31.94	0.00	123.82	29.80	0.00	129.09
VOC	Total Xylene	32.20	0.00	82.19	30.71	0.00	73.46
VOC	Trichloroethene	1.55	1.55	1.55	1.24	1.24	1.24
VOC	Vinyl Chloride	8.78	0.90	22.35	9.81	1.02	25.29
VOC	m,p-Xylene	2.01	0.00	10.07	2.28	0.00	11.40
VOC	m,p-xylene	39.30	4.04	119.09	41.82	5.60	165.05
VOC	n-Hexane	11.10	9.06	13.13	12.56	10.25	14.86
VOC	o-Xylene	0.00	0.00	0.00	0.00	0.00	0.00
VOC	o-xylene	20.62	3.29	74.70	18.29	4.56	59.77

(a) Table described in Section 6.9 Results .

TABLE 21. POPULATION INFORMATION AND RATINGS.

Major Group	Sub Group	Fuel	AFCD Type	SCC	Number of Tests	Population (SC not Included)**	Population (SC Only)*	Total Population	Ratio of Tests to Total Population, %	Population Rating***
Asphalt Blowing	1	ASPHALT FUMES	TO	30601101	1	0	<7	7	14.29	3
Asphalt Blowing	2	ASPHALT FUMES	TO	30601101	1	0	<7	7	14.29	3
Asphalt Prod., Diesel	1	DIESEL	C/FF	30500211	1	<50		50	2.00	3
Asphalt Prod., Diesel	2	DIESEL	FF	30500205	1	<150		150	0.67	3
Asphalt Prod., Diesel	3	DIESEL	WS	30500205	1	<150		150	0.67	3
Asphalt Prod., Natural Gas	1	NATURAL GAS	C/W/S	30500211	3	<50		50	6.00	2
Asphalt Prod., Oil	1	PROCESS OIL 70	C/W/S	30500211	1	<50		50	2.00	3
Boiler, Distillate	1	DIESEL	NONE	10200501	7	5663		5663	0.12	1
Boiler, Fuel Oil	1	NO. 6 FUEL OIL	NONE	10100401	4	774		774	0.52	2
Boiler, Fuel Oil	2	NO. 6 FUEL OIL	NONE	10200401, 10200402, 10200403	7	734		734	0.95	1
Boiler, Landfill Gas	1	LANDFILL GAS	NONE	10300811	1	0	11	11	9.09	3
Boiler, Natural Gas	1	NATURAL GAS	NONE	10100601	3	381		381	0.79	2
Boiler, Wood	1	WOOD	ESP/PMC	10100903	1	35	2	37	2.70	3
Cement Kiln, Coal	1	COAL	FF	30500606	2	<239	<5	244	0.82	3
Cement Kiln, Coal/Coke	1	COAL/COKE	FF	30500606	1	<239	<5	244	0.41	3
Coating, Green PE	1	GREEN PE (15% CHROMIUM)	BF	40200110	1	266		266	0.38	3
Coating, Green PE	2	GREEN PE (15% CHROMIUM)	PA	40200110	2	<2158		2158	0.09	3
Coating, Green PE	3	GREEN PE (15% CHROMIUM)	WC	40200110	1	79		79	1.27	3
Coating, Green PE	4	GREEN PE (15% CHROMIUM)	WT	40200110	1	<2158		2158	0.05	3
Coating, Green Primer	1	GREEN PRIMER (25-35% CHROMATE)	BF	40200610	1	0		0	na	3
Coating, Green Primer	2	GREEN PRIMER (25-35% CHROMATE)	PA	40200610	2	0		0	na	3
Coating, Green Primer	3	GREEN PRIMER (25-35% CHROMATE)	WC	40200610	1	0		0	na	3
Coating, Green Primer	4	GREEN PRIMER (25-35% CHROMATE)	WC	40200610	1	0		0	na	3
Coating, Green Primer	5	GREEN PRIMER (25-35% CHROMATE)	WSN	40200610	1	0		0	na	3
Coating, Green Primer	6	GREEN PRIMER (25-35% CHROMATE)	WT	40200610	2	0		0	na	3
Coating, Powder	1	POWDER (75% Cr, 2.20% Ni, 5% Cr)	NONE	40200101	1	<297		297	0.34	3
Coating, Powder	2	POWDER (87% Al2O3, 13% TiO2)	NONE	40200101	1	<297		297	0.34	3
Coating, Powder	3	POWDER (70% Ni, 4% Cr)	AF	40202499	1	>11		11	9.09	3
Coating, Powder	4	POWDER (49% Ni, 44% Cr)	AF	40202499	1	>11		11	9.09	3
Coating, Powder	5	POWDER (4% Ni, 96% Al)	AF	40202499	1	>11		11	9.09	3
Coating, Powder	6	POWDER (80% Ni, 20% Cr)	NONE	40200101	1	<297		297	0.34	3
Coating, Powder	7	POWDER (100% Chromium Oxide)	NONE	40200101	1	<297		297	0.34	3
Coating, Yellow PE	1	YELLOW PE (30% LEAD CHROMATE)	BF	40200110	1	266		266	0.38	3
Coke Calcining	1	NATURAL GAS	SD/FF	30601401	1	58		58	1.72	3
Drum Burning Furnace	1	NONE	AB	30902501	1	0		0	na	3
FBC, Biomass	1	WOOD WASTE	A/C/ESP	10100903	1	<124		124	0.81	3
FBC, Biomass	2	AGRICULTURAL WASTE	A/C/FF	10100903	1	<124		124	0.81	3
FBC, Coal	1	COAL	L/A/C/FF	10100217	6	79		79	7.59	1
FBC, Coke	1	COKE	L/A/C/FF	10100801	2	?		0	na	3
Furnace, Alloy Stock	1	ALLOY STOCK	NONE	30300926	1	0	37	37	2.70	3
Furnace, Aluminum	1	ALUMINUM	FF	30400107	1	18	0	18	5.56	3
Furnace, Aluminum	2	ALUMINUM	NONE	30400199	1	?	7	7	14.29	3
Furnace, Aluminum	3	ALUMINUM	FF	30400103	1	?	9	9	11.11	3

TABLE 21. POPULATION INFORMATION AND RATINGS.

Major Group	Sub Group	Fuel	APCD Type	ISCC	Number of Tests	Population (SC not Included)**	Population (SC Only)*	Total Population	Ratio of Tests to Total Population, %	Population Rating***
Furnace, Aluminum	4	ALUMINUM	NONE	30400103	2	0	186	186	1.08	3
Furnace, Brass/Bronze	1	BRASS AND BRONZE INGOT	FF	30400224	1	31	11	42	2.38	3
Furnace, Glass	1	SAND/LIMESTONE/SODA	FF	30501402	1	11	13	24	4.17	3
Furnace, Glass	2	SAND/LIMESTONE/SODA	NONE	30501402, 30501403	3	30	53	83	3.61	2
Heater, Natural Gas	1	NATURAL GAS	NONE	31000404	1	0	0	0	na	3
Heater, Natural/Ref. Gas	1	NATURAL GAS/REFG	NONE	30600105, 30600106	1	0	67	67	1.49	3
Heater, Oil	1	PIPELINE OIL	NONE	31000403	1	0	0	0	na	3
ICE, Diesel	1	DIESEL	NONE	20200102	2	<3805	<191	3996	0.05	3
ICE, Diesel	2	DIESEL	NONE	20300101	2	833	<191	1024	0.20	3
ICE, Diesel	3	DIESEL	NONE	20100102	1	<3805	<191	3996	0.03	3
ICE, Diesel	4	DIESEL	NONE	20200102	3	<3805	<191	3996	0.08	2
ICE, Field Gas	1	FIELD GAS	NONE	20200202	3	0	0	0	na	2
ICE, Field Gas	2	FIELD GAS	NONE	20200252	1	0	0	0	na	3
ICE, Field Gas	4	FIELD GAS	NONE	20200254	1	0	0	0	na	3
ICE, Field Gas	5	FIELD GAS	NONE	20200252	1	0	0	0	na	3
ICE, Landfill Gas	1	LANDFILL GAS	NONE	20100802	2	199	54	253	0.79	3
ICE, Natural Gas	1	NATURAL GAS	NONE	20200202	7	<717	<717	717	0.98	1
ICE, Natural Gas	2	NATURAL GAS	NONE	20200254	5	<717	<717	717	0.70	1
ICE, Natural Gas	3	NATURAL GAS	NONE	20200202	2	<717	<717	717	0.28	3
ICE, Natural Gas	4	NATURAL GAS	NONE	20200252	3	<717	<717	717	0.42	2
Plating, Anodizing	1	CHROMIC ACID	WS	30901006	1	17	<4	21	4.76	3
Plating, Anodizing	2	CHROMIC ACID	DM/W/S/FF	30901006	1	10	<4	14	7.14	3
Plating, Hard	1	CHROMIC ACID	WS	30901006	6	12	130	142	4.23	1
Plating, Hard	2	CHROMIC ACID	DM/W/S/FF	30901006	2	10	12	22	9.09	3
PM, Devolatilizer	1	STYRENE MONOMER	ESP	30101818	1	0	0	0	na	3
PM, Extruder	1	STYRENE MONOMER	ESP	30101818	1	0	11	11	9.09	3
PM, Mix Tank	1	STYRENE MONOMER	ESP	30101818	1	0	0	0	na	3
PM, Reactor	1	STYRENE MONOMER	ESP	30101818	2	0	0	0	na	3
PM, Storage Silo	1	STYRENE MONOMER	NONE	30101817	3	0	54	54	5.56	2
Preheater Kiln, Coal	1	COAL	C/FF	30501622	1	0	0	0	na	3
SG, Crude Oil	1	CRUDE OIL	SO2 Scrub	31000413	3	7401	0	7401	0.04	2
SG, Natural Gas	1	NATURAL GAS	NONE	31000414	1	1657	0	1657	0.06	3
SG, Natural/CVR Gas	1	NATURAL GAS/CVR GAS	NONE	31000414, 31000415	2	0	0	0	na	3
Turbine, Distillate	1	NO. 2 DISTILLATE OIL	NONE	20100101	3	883	41	924	0.32	2
Turbine, Distillate	2	NO. 2 DISTILLATE OIL	NONE	20200103	2	0	2	2	100.00	3
Turbine, Field Gas	1	FIELD GAS	NONE	20200203	1	0	0	0	na	3
Turbine, Landfill Gas	1	LANDFILL GAS	NONE	20100801	1	52	4	56	1.79	3
Turbine, Natural Gas	1	NATURAL GAS	NONE	20200201	1	334	54	388	0.26	3
Turbine, Natural Gas	2	NATURAL GAS	NONE	20200203	8	0	10	10	80.00	1

\*Estimates based on SC permit database

\*\*Estimates based on ATEDS.

\*\*\*Population ratings based on communication with ARB

TABLE 22. CARB OVERALL RATING.

CARB Method Rating*	Population Rating		
	1. Many random facilities [5 or more sources]	2. Reasonable number of facilities [3 to 4 sources]	3. Small number of facilities [<3 sources]
A Test was performed using a new or old CARB methodology and sufficient documentation was provided to validate the results.	v0 (3) v1 (5) v3 (4)	v1 (11) v2 (1)	v- (8), v0 (351) v1 (193), v2 (15)
B Test was performed using a new or old EPA methodology and sufficient documentation was provided to validate the results.	v1 (32), v2 (126) v3 (41), v4 (23) v5 (28), v6 (2)	v0 (1), v1 (29) v2 (39), v3 (17) v4 (8), v5 (2)	v0 (29), v1 (33) v2 (31), v3 (5)
C Test was performed using a new or old CARB methodology and insufficient documentation was provided to validate the results.	v0 (8), v1 (4) v2 (8), v3 (28) v4 (6)	v0 (4), v1 (44) v2 (24), v3 (3)	v- (76), v0 (318) v1 (140) v2 (29), v3 (5)
D Test was performed using a new or old EPA methodology and insufficient documentation was provided to validate the results.	v1 (4) v2 (10) v3 (4)	v0 (4), v1 (12) v2 (2), v3 (4)	v- (29), v0 (65) v1 (50) v2 (28), v3 (7)
E An assumption was made in the emission factor calculation which could significantly affect the accuracy of the results.	None	None	v- (6), v0 (77) v1 (45) v2 (3), v3 (1)

vN - N is the order of magnitude difference between minimum and maximum.

() - Number of emission factors

\* - The EPA methods are not considered inferior. However, the Hot Spots Program mandated that an EPA method could be used only if there was no corresponding CARB test method or if the source asked for an equivalency determination. CARB and EPA test methods are different in many cases and can lead to different results. CARB test methods were rated higher than the EPA's to provide consistent test result comparisons.

TABLE 23. EPA OVERALL RATING THAT WOULD BE ASSIGNED TO CALIFORNIA DATA \*

EPA Method Rating	Population Rating		
	1. Many random facilities [5 or more sources]	2. Reasonable number of facilities [3 to 4 sources]	3. Small number of facilities [<3 sources]
A Current EPA or CARB method with supporting documentation	A (88)	B (78)	D (1002)
B Current EPA or CARB method no supporting documentation		C (84)	
C Old EPA or CARB method with and without supporting documentation	NR (291)		
D Order of magnitude method	E (542)		

NR - Not rated in EPA system

() - Number of emission factors

\*EPA overall ratings shown were assigned for this project and are not official EPA ratings.



TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ATB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Yield	RSD, %	Uncert. %	Det. Ratio
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Beryllium	E3-v0	1.50E-07	1.53E-07	1.63E-07	1.35E-07	bar/ton production	1	9.49	10.74	0.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Cadmium	E3-v1	1.39E-06	1.69E-07	1.63E-07	9.29E-08	bar/ton production	1	28.37	32.10	0.78
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Chromium (Hex)	E3-v0	9.59E-06	7.92E-08	1.90E-07	5.79E-08	bar/ton production	1	36.68	41.51	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Chromium (Total)	E3-v0	5.23E-07	3.27E-07	9.15E-07	3.26E-07	bar/ton production	1	65.04	73.59	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Copper	E3-v0	1.92E-06	1.09E-06	1.45E-06	8.17E-07	bar/ton production	1	28.16	31.87	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Lead	E3-v0	2.27E-06	1.45E-06	4.94E-06	1.31E-06	bar/ton production	1	67.86	76.79	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Manganese	E3-v0	9.11E-07	9.95E-07	1.08E-06	7.21E-07	bar/ton production	1	19.98	22.82	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Mercury	E3-v0	7.08E-07	7.07E-07	7.83E-07	6.25E-07	bar/ton production	1	11.21	12.68	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Nickel	E3-v0	5.35E-07	4.92E-07	7.65E-07	4.16E-07	bar/ton production	1	37.34	42.25	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Selenium	E3-v1	1.19E-06	9.25E-07	1.75E-06	8.17E-07	bar/ton production	1	49.59	49.33	0.50
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	Metals	Zinc	E3-v1	6.71E-06	3.59E-06	1.39E-05	2.62E-06	bar/ton production	1	93.70	106.02	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Acenaphthene	E3-v1	2.11E-08	2.33E-08	3.08E-08	9.31E-09	bar/ton production	1	51.40	59.16	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Acenaphthylene	E3-v1	2.01E-08	1.30E-08	4.19E-08	6.37E-09	bar/ton production	1	92.51	104.88	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Anthracene	E3-v0	6.98E-08	1.48E-08	2.58E-08	1.08E-08	bar/ton production	1	44.86	50.76	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Benzo(a)anthracene	E3-v0	8.41E-09	6.03E-09	9.14E-09	4.07E-09	bar/ton production	1	39.88	45.13	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Benzo(b)fluoranthene	E3-v0	3.13E-10	3.98E-10	4.58E-10	2.53E-10	bar/ton production	1	16.87	19.09	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Benzo(k)fluoranthene	E3-v0	4.98E-10	7.84E-10	1.18E-08	5.68E-10	bar/ton production	1	146.56	165.85	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Benzo(g)perylene	E3-v0	5.03E-10	5.07E-10	5.32E-10	4.71E-10	bar/ton production	1	6.16	6.97	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Benzo(i)perylene	E3-v1	1.93E-09	3.97E-10	2.63E-09	3.49E-10	bar/ton production	1	115.87	131.11	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Chrysene	E3-v1	1.25E-06	1.10E-06	1.67E-06	9.80E-07	bar/ton production	1	29.45	33.31	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Dibenz(a,h)anthracene	E3-v1	1.90E-10	1.32E-10	1.15E-10	1.24E-10	bar/ton production	1	44.76	50.64	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Fluorene	E3-v1	8.67E-08	7.84E-08	1.29E-07	5.27E-08	bar/ton production	1	69.13	78.22	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Indeno(1,2,3-cd)pyrene	E3-v1	3.00E-10	2.91E-10	3.06E-10	2.95E-10	bar/ton production	1	2.01	2.27	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Naphthalene	E3-v1	1.08E-05	1.30E-05	1.40E-05	5.99E-06	bar/ton production	1	43.57	49.31	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Phenanthrene	E3-v1	7.23E-07	6.93E-07	1.08E-06	4.90E-07	bar/ton production	1	42.95	48.61	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	PAH	Pyrene	E3-v0	5.99E-08	5.88E-08	8.60E-08	3.48E-08	bar/ton production	1	42.66	48.27	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	VOC	Benzene	E3-v0	1.04E-03	1.04E-03	1.09E-03	1.00E-03	bar/ton production	1	4.45	5.04	1.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	VOC	Formaldehyde	E3-v0	4.93E-04	2.29E-04	3.30E-04	1.80E-04	bar/ton production	1	31.80	35.98	1.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Arsenic	D3-v0	8.02E-06	9.02E-06	8.02E-06	8.02E-06	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Beryllium	D3-v0	4.01E-06	4.01E-06	4.01E-06	4.01E-06	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Cadmium	D3-v0	4.41E-05	4.41E-05	4.41E-05	4.41E-05	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Chromium (Total)	D3-v0	8.42E-05	8.42E-05	8.42E-05	8.42E-05	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Copper	D3-v0	1.32E-04	1.32E-04	1.32E-04	1.32E-04	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Lead	D3-v0	2.19E-03	2.19E-03	2.19E-03	2.19E-03	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Manganese	D3-v0	1.64E-03	1.64E-03	1.64E-03	1.64E-03	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Mercury	D3-v0	8.02E-07	8.02E-07	8.02E-07	8.02E-07	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Nickel	D3-v0	3.81E-04	3.81E-04	3.81E-04	3.81E-04	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Selenium	D3-v0	8.02E-06	8.02E-06	8.02E-06	8.02E-06	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	WS	None	Asphalt Prod. Diesel/2	Metals	Zinc	D3-v0	4.62E-03	4.62E-03	4.62E-03	4.62E-03	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500205	FF	None	Asphalt Prod. Diesel/2	VOC	Benzene	C3-v0	3.05E-04	3.05E-04	3.05E-04	3.05E-04	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Arsenic	C3-v0	2.73E-07	2.71E-07	2.77E-07	2.70E-07	bar/ton production	1	1.44	1.63	0.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Beryllium	C3-v0	5.45E-07	5.42E-07	5.54E-07	5.39E-07	bar/ton production	1	1.44	1.63	0.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Cadmium	C3-v0	1.62E-06	1.62E-06	1.62E-06	1.62E-06	bar/ton production	1	0.00	0.00	0.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Chromium (Hex)	C3-v0	3.61E-07	3.67E-07	5.17E-07	2.09E-07	bar/ton production	1	43.92	49.70	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Chromium (Total)	C3-v0	1.96E-06	1.40E-06	3.41E-06	1.07E-06	bar/ton production	1	64.78	73.31	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Copper	C3-v0	1.50E-06	1.50E-06	1.66E-06	1.35E-06	bar/ton production	1	14.76	20.46	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Lead	C3-v0	2.01E-06	2.17E-06	2.77E-06	1.38E-06	bar/ton production	1	42.76	48.38	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Manganese	C3-v1	1.24E-05	1.36E-05	1.61E-05	7.55E-06	bar/ton production	1	35.33	39.98	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Nickel	C3-v0	4.88E-08	5.93E-08	7.05E-08	1.69E-08	bar/ton production	1	58.25	63.91	0.52
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Selenium	C3-v0	2.79E-07	2.71E-07	2.77E-07	2.70E-07	bar/ton production	1	1.44	1.63	0.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	Metals	Zinc	C3-v0	1.82E-05	1.66E-05	2.44E-05	1.35E-05	bar/ton production	1	30.95	35.02	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Acenaphthene	A3-v0	4.80E-07	6.49E-07	9.53E-07	4.15E-07	bar/ton production	1	80.81	91.56	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Acenaphthylene	A3-v0	3.91E-08	2.70E-07	6.35E-07	1.03E-07	bar/ton production	1	87.92	91.56	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Anthracene	A3-v0	6.13E-08	3.48E-08	3.70E-08	2.34E-08	bar/ton production	1	23.84	27.09	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Benzo(a)anthracene	A3-v0	2.78E-09	4.88E-08	3.00E-08	4.49E-08	bar/ton production	1	51.96	58.80	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Benzo(b)fluoranthene	A3-v1	1.39E-08	6.44E-09	2.49E-08	8.28E-09	bar/ton production	1	68.08	77.04	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Benzo(k)fluoranthene	A3-v0	1.90E-09	1.72E-09	2.65E-09	1.73E-09	bar/ton production	1	35.53	40.20	0.23
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Benzo(g)perylene	A3-v0	5.13E-09	3.60E-09	8.47E-09	3.31E-09	bar/ton production	1	56.56	64.00	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Benzo(i)perylene	A3-v1	2.02E-08	2.34E-08	4.65E-08	1.69E-08	bar/ton production	1	45.67	51.68	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Chrysene	A3-v0	1.70E-08	1.72E-08	2.28E-08	9.00E-09	bar/ton production	1	49.76	56.30	0.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Dibenz(a,h)anthracene	A3-v1	1.76E-07	1.24E-07	2.28E-07	1.98E-07	bar/ton production	1	7.51	8.50	1.00
Asphalt Production	Diesel	30500211	C/F	None	Asphalt Prod. Diesel/1	PAH	Fluorene	A3-v1	8.93E-07	8.10E-07	1.22E-06	6.21E-07	bar/ton production	1	34.56	39.11	1.00
Asphalt Production	Diesel	30500211	C/F	None													

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	AFB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tasks	RSD, %	Uncertainty, %	Det Ratio
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Cadmium	C2-v1	1.78E-06	9.4E-07	7.99E-05	4.21E-07	Asphalt production	3	133.47	87.20	0.79
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Chromium (Hex)	C2-v2	4.47E-07	3.05E-07	1.07E-05	3.33E-08	Asphalt production	3	94.43	61.58	0.27
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Chromium (Total)	C2-v1	9.92E-07	1.04E-06	1.55E-05	4.25E-07	Asphalt production	3	37.04	24.20	0.67
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Copper	C2-v0	3.27E-06	3.37E-06	4.89E-06	1.23E-06	Asphalt production	3	40.05	26.16	0.72
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Lead	C2-v2	2.00E-05	1.52E-05	2.10E-05	1.05E-05	Asphalt production	3	152.51	99.64	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Manganese	C2-v2	2.08E-05	3.18E-05	4.46E-05	1.89E-05	Asphalt production	3	68.58	44.80	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Mercury	C2-v2	6.53E-06	2.05E-06	1.02E-05	3.08E-07	Asphalt production	3	115.28	75.32	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Nickel	C2-v1	6.68E-07	6.13E-07	1.99E-06	7.05E-07	Asphalt production	3	89.63	58.56	0.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Selenium	C2-v1	3.00E-05	1.24E-05	6.56E-05	1.95E-05	Asphalt production	3	89.94	58.76	0.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Zinc	B2-v4	6.40E-07	5.72E-07	1.23E-06	6.14E-08	Asphalt production	3	63.77	41.66	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Acenaphthene	B2-v3	1.53E-06	9.4E-07	1.08E-05	3.70E-10	Asphalt production	3	83.77	146.20	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Acenaphthylene	B2-v3	1.89E-07	2.14E-08	9.67E-07	4.14E-10	Asphalt production	3	48.74	36.11	0.99
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Anthracene	B2-v3	9.64E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	51.78	42.36	0.62
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzo(a)anthracene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzo(b)fluoranthene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzo(g,h,i)perylene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzo(k)fluoranthene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Chrysene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Dibenz(a,h)anthracene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Fluoranthene	B2-v4	1.72E-06	7.46E-07	6.95E-06	2.99E-09	Asphalt production	3	51.74	33.80	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Indeno(1,2,3-cd)pyrene	B2-v3	1.62E-06	1.07E-06	3.22E-06	1.05E-06	Asphalt production	3	96.39	52.88	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Naphthalene	B2-v3	2.48E-05	1.91E-05	2.68E-05	1.48E-05	Asphalt production	3	49.04	36.33	0.48
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Phenanthrene	B2-v3	4.98E-05	3.41E-05	5.48E-05	2.97E-05	Asphalt production	3	86.39	52.88	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Pyrene	B2-v3	8.92E-05	6.48E-05	9.61E-05	5.48E-05	Asphalt production	3	276.89	180.90	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Ethylbenzene	C3-v0	2.74E-05	2.70E-05	3.34E-05	1.4E-05	Asphalt production	1	21.36	24.17	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Acetaldehyde	C3-v0	8.92E-05	6.48E-05	9.61E-05	5.48E-05	Asphalt production	1	25.80	29.19	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzene	C3-v0	5.94E-05	4.38E-05	6.32E-05	2.7E-05	Asphalt production	1	135.22	86.34	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Formaldehyde	C3-v0	2.57E-04	1.85E-04	2.68E-04	1.00E-04	Asphalt production	1	136.38	86.10	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Hydrogen Sulfide	C3-v0	8.92E-05	6.48E-05	9.61E-05	5.48E-05	Asphalt production	1	21.36	24.17	0.67
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Methyl Chloroform	C3-v0	4.32E-05	3.14E-05	4.50E-05	1.44E-05	Asphalt production	1	25.40	24.74	1.00
Asphalt Production	Natural gas	30500211	C/F	None	Asphalt Prod., Natural Gas/ Metals	Metals	Toluene	C3-v0	2.82E-05	2.08E-05	2.93E-05	1.16E-05	Asphalt production	1	22.09	24.99	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Xylene (Total)	C3-v0	6.69E-07	6.13E-07	2.00E-06	1.03E-07	Asphalt production	3	90.07	58.85	0.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Asenic	C2-v1	8.32E-07	9.08E-07	2.00E-06	2.11E-07	Asphalt production	3	74.61	48.74	0.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Baryllum	C2-v1	1.78E-06	9.44E-07	7.99E-06	4.21E-07	Asphalt production	3	133.47	87.20	0.79
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Cadmium	C2-v2	4.47E-07	3.05E-07	1.07E-05	3.33E-08	Asphalt production	3	94.43	61.58	0.27
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Chromium (Hex)	C2-v1	9.92E-07	1.04E-06	1.55E-05	4.25E-07	Asphalt production	3	37.04	24.20	0.67
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Chromium (Total)	C2-v0	3.27E-06	3.37E-06	4.89E-06	1.23E-06	Asphalt production	3	40.05	26.16	0.72
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Copper	C2-v2	2.00E-05	1.52E-05	2.10E-05	1.05E-05	Asphalt production	3	152.51	99.64	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Lead	C2-v2	2.08E-05	3.18E-05	4.46E-05	1.89E-05	Asphalt production	3	68.58	44.80	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Manganese	C2-v2	2.08E-05	3.18E-05	4.46E-05	1.89E-05	Asphalt production	3	68.58	44.80	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Mercury	C2-v2	6.53E-06	2.05E-06	1.02E-05	3.08E-07	Asphalt production	3	115.28	75.32	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Nickel	C2-v1	6.68E-07	6.13E-07	1.99E-06	7.05E-07	Asphalt production	3	89.63	58.56	0.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Selenium	C2-v1	3.00E-05	1.24E-05	6.56E-05	1.95E-05	Asphalt production	3	89.94	58.76	0.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Zinc	B2-v4	6.40E-07	5.72E-07	1.23E-06	6.14E-08	Asphalt production	3	63.77	41.66	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Acenaphthene	B2-v3	1.53E-06	9.4E-07	1.08E-05	3.70E-10	Asphalt production	3	83.77	146.20	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Acenaphthylene	B2-v3	1.89E-07	2.14E-08	9.67E-07	4.14E-10	Asphalt production	3	48.74	36.11	0.99
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Anthracene	B2-v3	9.64E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	51.78	42.36	0.62
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzo(a)anthracene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzo(b)fluoranthene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzo(g,h,i)perylene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzo(k)fluoranthene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Chrysene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Dibenz(a,h)anthracene	B2-v1	1.04E-09	1.03E-09	1.57E-08	3.70E-10	Asphalt production	3	58.93	62.18	0.36
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Fluoranthene	B2-v4	1.72E-06	7.46E-07	6.95E-06	2.99E-09	Asphalt production	3	51.74	33.80	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Indeno(1,2,3-cd)pyrene	B2-v3	1.62E-06	1.07E-06	3.22E-06	1.05E-06	Asphalt production	3	96.39	52.88	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Naphthalene	B2-v3	2.48E-05	1.91E-05	2.68E-05	1.48E-05	Asphalt production	3	49.04	36.33	0.49
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Phenanthrene	B2-v3	4.98E-05	3.41E-05	5.48E-05	2.97E-05	Asphalt production	3	86.39	52.88	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Pyrene	B2-v3	8.92E-05	6.48E-05	9.61E-05	5.48E-05	Asphalt production	3	276.89	180.90	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Ethylbenzene	C3-v0	2.74E-05	2.70E-05	3.34E-05	1.4E-05	Asphalt production	1	21.36	24.17	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Acetaldehyde	C3-v0	8.92E-05	6.48E-05	9.61E-05	5.48E-05	Asphalt production	1	25.80	29.19	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Benzene	C3-v0	5.94E-05	4.38E-05	6.32E-05	2.7E-05	Asphalt production	1	135.22	86.34	1.00
Asphalt Production	Natural gas	30500211	C/W	None	Asphalt Prod., Natural Gas/ Metals	Metals	Formaldehyde	C3-v0	2.57E-04	1.85E-04</							

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	AFC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncertainty Inty, %	Det Ratio
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Beryllium	C3-v0	4.18E-07	4.18E-07	4.43E-07	3.87E-07	lb/ton production	1	6.74	7.62	0.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Chromium	C3-v1	7.87E-07	2.21E-07	1.98E-06	1.93E-07	lb/ton production	1	126.36	142.98	0.82
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Chromium (Hex)	C3-v1	1.04E-06	8.95E-08	1.40E-07	8.24E-08	lb/ton production	1	30.24	34.22	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Chromium (Total)	C3-v1	9.04E-06	5.92E-06	1.75E-05	3.79E-06	lb/ton production	1	81.87	92.64	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Copper	C3-v0	6.01E-06	6.91E-06	8.41E-06	7.71E-06	lb/ton production	1	49.19	55.67	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Lead	C3-v1	1.41E-06	1.69E-06	2.77E-06	2.74E-06	lb/ton production	1	38.12	44.26	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Manganese	C3-v1	1.40E-04	1.65E-04	2.01E-04	2.22E-05	lb/ton production	1	55.74	63.07	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Mercury	C3-v1	7.02E-06	4.84E-06	1.35E-05	7.27E-06	lb/ton production	1	81.37	92.06	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Nickel	C3-v0	2.08E-07	2.09E-07	2.21E-07	1.83E-07	lb/ton production	1	31.29	35.40	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Selenium	C3-v0	8.42E-05	2.89E-05	1.11E-05	5.80E-06	lb/ton production	1	6.74	7.62	0.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Zinc	C3-v0	2.52E-05	2.88E-05	3.14E-05	1.55E-05	lb/ton production	1	33.88	38.33	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Acenaphthene	A3-v0	3.06E-07	3.06E-07	3.07E-07	2.23E-07	lb/ton production	1	28.85	30.38	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Acenaphthylene	A3-v0	5.26E-07	4.48E-07	7.91E-07	4.02E-08	lb/ton production	1	44.58	50.45	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Anthracene	A3-v0	7.44E-08	5.63E-08	7.56E-08	4.27E-08	lb/ton production	1	30.91	34.98	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Benzo(a)anthracene	A3-v1	1.11E-08	1.21E-08	1.28E-08	8.65E-09	lb/ton production	1	19.27	21.81	0.72
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Benzo(b)fluoranthene	A3-v1	1.84E-09	8.07E-10	3.96E-09	7.44E-10	lb/ton production	1	11.68	13.19	0.72
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Benzo(k)fluoranthene	A3-v1	2.10E-09	1.98E-09	2.38E-09	1.94E-09	lb/ton production	1	11.68	13.19	0.72
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Benzo(e)pyrene	A3-v0	8.17E-10	8.07E-10	9.01E-10	9.01E-10	lb/ton production	1	21.64	24.49	0.75
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Benzo(g,h,i)perylene	A3-v0	1.17E-10	8.07E-10	9.01E-10	7.44E-10	lb/ton production	1	9.64	10.90	0.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Benzo(i)perylene	A3-v0	3.57E-08	3.99E-08	4.81E-08	2.70E-08	lb/ton production	1	9.64	10.90	0.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Fluorene	A3-v0	6.58E-07	7.02E-07	8.39E-07	4.32E-07	lb/ton production	1	27.14	30.71	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Indeno(1,2,3-cd)pyrene	A3-v0	8.17E-10	8.07E-10	9.01E-10	7.44E-10	lb/ton production	1	9.64	10.90	0.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Naphthalene	A3-v0	3.08E-05	2.98E-05	3.39E-05	2.88E-05	lb/ton production	1	8.75	10.90	0.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Phenanthrene	A3-v0	6.84E-07	6.62E-07	8.93E-07	4.46E-07	lb/ton production	1	32.66	37.19	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	Metals	Pyrene	A3-v0	6.84E-07	6.62E-07	8.93E-07	4.46E-07	lb/ton production	1	32.66	37.19	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	VOC	Benzene	C3-v0	5.82E-08	4.52E-08	8.18E-08	4.14E-08	lb/ton production	1	59.97	45.00	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	VOC	Benzene	C3-v0	9.00E-05	6.11E-05	6.89E-05	4.69E-05	lb/ton production	1	18.65	21.33	1.00
Asphalt Production	Process of 70	30500211	CWS	None	Asphalt Prod. OMI	VOC	Formaldehyde	A3-v0	1.38E-04	1.42E-04	1.53E-04	1.13E-04	lb/ton production	1	18.65	18.92	1.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Acenaphthene	B1-v4	2.11E-04	3.77E-05	1.53E-03	5.33E-07	lb/Mgal	6	184.82	90.56	0.96
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Acenaphthylene	B1-v2	5.00E-05	2.98E-05	2.98E-04	1.68E-06	lb/Mgal	7	127.79	50.75	0.76
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Anthracene	B1-v2	2.39E-05	1.77E-05	8.49E-05	3.56E-07	lb/Mgal	7	107.51	44.58	0.83
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Benzo(a)anthracene	B1-v2	1.35E-06	9.21E-06	9.93E-06	3.90E-07	lb/Mgal	6	167.60	79.67	0.72
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Benzo(b)fluoranthene	B1-v2	6.75E-06	4.58E-06	2.20E-05	3.90E-07	lb/Mgal	7	85.63	40.02	0.09
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Benzo(k)fluoranthene	A3-v0	1.40E-05	3.69E-06	2.11E-05	3.90E-07	lb/Mgal	7	97.14	44.88	0.16
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Benzo(e)pyrene	B1-v2	8.50E-06	6.13E-06	7.75E-05	6.92E-05	lb/Mgal	7	11.97	16.59	0.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Benzo(g,h,i)perylene	B1-v3	3.1E-05	4.34E-06	7.02E-04	3.95E-07	lb/Mgal	7	83.25	40.87	0.21
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Benzo(i)perylene	B1-v2	1.28E-05	8.56E-06	1.01E-04	3.95E-07	lb/Mgal	7	269.37	124.44	0.95
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Chrysene	B1-v2	6.49E-06	4.58E-06	7.25E-05	3.42E-07	lb/Mgal	6	183.62	87.29	0.77
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Fluorene	B1-v1	3.32E-05	2.60E-05	7.15E-05	3.42E-07	lb/Mgal	6	114.28	50.08	0.10
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Fluorene	B1-v2	6.45E-06	5.82E-06	2.18E-05	2.78E-06	lb/Mgal	6	68.49	32.56	0.95
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Fluorene	B1-v2	1.17E-04	1.33E-04	2.76E-04	2.78E-06	lb/Mgal	6	70.89	34.74	0.98
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Indeno(1,2,3-cd)pyrene	B1-v2	6.64E-06	5.82E-06	2.18E-05	2.78E-06	lb/Mgal	6	86.38	37.86	0.16
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Naphthalene	B1-v2	3.67E-01	8.84E-04	2.18E-05	3.90E-07	lb/Mgal	7	246.24	107.92	1.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Phenanthrene	B1-v2	3.72E-04	3.52E-04	9.80E-04	6.81E-06	lb/Mgal	7	79.23	36.60	0.83
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	PAH	Pyrene	B1-v2	4.08E-05	1.40E-05	1.68E-04	9.95E-07	lb/Mgal	6	73.28	34.84	0.83
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	SVOC	2-Chloroacetaldehyde	A3-v0	1.84E-05	1.86E-05	1.86E-05	1.81E-05	lb/Mgal	1	2.15	2.98	0.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	SVOC	2-Methylacetaldehyde	A3-v0	1.40E-04	1.28E-04	1.81E-04	1.17E-04	lb/Mgal	1	24.89	28.28	0.57
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	SVOC	Phenylene	C3-v0	4.9E-03	3.5E-03	1.65E-03	1.27E-03	lb/Mgal	1	13.33	15.09	0.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	VOC	Benzene	A3-v0	2.71E-05	2.71E-05	2.90E-05	2.52E-05	lb/Mgal	1	24.89	28.28	0.57
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	VOC	Formaldehyde	C3-v0	2.54E-03	2.62E-03	2.85E-03	2.17E-03	lb/Mgal	1	9.88	13.69	0.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	VOC	Hexane	B1-v4	3.48E-01	3.38E-02	1.75E+00	2.29E-04	lb/Mgal	1	13.62	15.41	1.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	VOC	Propylene	C3-v0	1.21E-03	1.26E-03	1.34E-03	1.03E-03	lb/Mgal	6	152.43	70.42	1.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	VOC	Toluene	C3-v0	1.71E-03	1.78E-03	1.80E-03	1.53E-03	lb/Mgal	1	13.13	14.86	0.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	VOC	Xylenes (Total)	C3-v0	1.50E-03	1.43E-03	1.70E-03	1.35E-03	lb/Mgal	1	8.97	10.03	1.00
Boiler	Diesel	10200501	None	None	Boiler, Distillate/1	VOC	Xylenes (Total)	C3-v0	4.11E-03	1.55E-03	1.65E-03	1.27E-03	lb/Mgal	1	12.35	13.97	0.38
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	PAH	Acenaphthene	B1-v4	2.11E-04	3.77E-05	1.53E-03	5.33E-07	lb/Mgal	6	184.82	90.56	0.96
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	PAH	Acenaphthylene	B1-v2	6.50E-05	2.98E-05	2.98E-04	1.68E-06	lb/Mgal	7	127.79	50.75	0.76
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	PAH	Anthracene	B1-v2	2.39E-05	1.77E-05	8.49E-05	3.56E-07	lb/Mgal	7	96.51	44.58	0.83
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	PAH	Benzo(a)anthracene	B1-v2	1.35E-06	9.21E-06	9.93E-06	3.90E-07	lb/Mgal	6	167.60	79.67	0.72
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	PAH	Benzo(b)fluoranthene	B1-v2	7.55E-06	4.58E-06	2.20E-05	3.60E-07	lb/Mgal	7	86.63	40.02	0.09
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	PAH	Benzo(k)fluoranthene	B1-v2	6.67E-06	3.69E-06	2.11E-05	3.60E-07	lb/Mgal	7	97.14	44.88	0.16
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	PAH	Benzo(e)pyrene	A3-v0	1.40E-05								

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	AFR Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncertainty, %	Dat Ratio
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	SVOC	2-Chloronaphthalene	A3-v0	1.84E-05	1.84E-05	1.84E-05	1.81E-05	Boer/Mgal	1	2.15	2.98	0.00
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	SVOC	2-Methylanthracene	A3-v0	1.40E-04	1.29E-04	1.81E-04	1.17E-04	Boer/Mgal	1	24.99	28.28	0.57
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	SVOC	Ethylbenzene	A3-v0	1.49E-03	1.55E-03	1.65E-03	1.27E-03	Boer/Mgal	1	13.33	15.09	0.00
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	SVOC	Phenylene	A3-v0	2.71E-05	2.71E-05	2.90E-05	2.52E-05	Boer/Mgal	1	9.88	13.69	0.00
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	SVOC	Benzene	B1-v4	3.49E-01	5.92E-02	2.15E-03	2.17E-03	Boer/Mgal	6	152.43	70.42	1.00
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	VOC	Formaldehyde	C3-v0	1.21E-03	1.28E-03	1.34E-03	1.03E-03	Boer/Mgal	1	13.13	14.86	0.00
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	VOC	Propylene	C3-v0	1.71E-03	1.78E-03	1.90E-03	1.53E-03	Boer/Mgal	1	8.87	10.03	1.00
Boiler	Diesel	10300501	None	None	Boiler, Distillate/1	VOC	Toluene	C3-v0	1.50E-03	1.49E-03	1.70E-03	1.27E-03	Boer/Mgal	1	12.35	13.97	0.38
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Dioxin/Furan	Dioxin 4D (Total)	C3-v0	6.88E-07	6.43E-07	7.27E-07	6.34E-07	Boer/Mgal	1	7.73	8.75	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Dioxin/Furan	Dioxin 4F Total	C3-v0	6.88E-07	6.43E-07	7.27E-07	6.34E-07	Boer/Mgal	1	7.73	8.75	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Dioxin/Furan	Dioxin 5D Total	C3-v0	6.88E-07	6.43E-07	7.27E-07	6.34E-07	Boer/Mgal	1	7.73	8.75	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Dioxin/Furan	Dioxin 5F Total	C3-v0	6.88E-07	6.43E-07	7.27E-07	6.34E-07	Boer/Mgal	1	7.73	8.75	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Dioxin/Furan	Dioxin 6D Total	C3-v0	6.88E-07	6.43E-07	7.27E-07	6.34E-07	Boer/Mgal	1	7.73	8.75	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Dioxin/Furan	Dioxin 6F Total	C3-v0	6.88E-07	6.43E-07	7.27E-07	6.34E-07	Boer/Mgal	1	7.73	8.75	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Dioxin/Furan	Dioxin 7D Total	C3-v0	1.34E-06	1.28E-06	1.45E-06	1.27E-06	Boer/Mgal	1	7.73	8.75	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Dioxin/Furan	Dioxin 7F Total	C3-v0	1.34E-06	1.28E-06	1.45E-06	1.27E-06	Boer/Mgal	1	7.73	8.75	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Dioxin/Furan	Dioxin 8F Total	C3-v0	1.34E-06	1.28E-06	1.45E-06	1.27E-06	Boer/Mgal	1	7.73	8.75	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Arsenic	D3-v0	3.62E-03	3.70E-03	3.94E-03	3.23E-03	Boer/Mgal	1	10.15	11.47	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Cadmium	D3-v1	5.33E-04	2.56E-04	1.10E-03	2.43E-04	Boer/Mgal	1	92.86	104.17	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Chromium (Hex)	C3-v0	5.43E-03	6.42E-03	6.70E-03	3.18E-03	Boer/Mgal	1	35.96	40.70	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Chromium (Total)	C3-v0	3.99E-02	5.32E-02	5.76E-02	2.59E-02	Boer/Mgal	1	43.90	49.22	0.54
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Copper	D3-v1	6.83E-03	7.22E-03	1.11E-02	2.93E-03	Boer/Mgal	1	39.86	45.10	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Lead	D3-v1	5.62E-03	5.71E-03	6.85E-03	4.39E-03	Boer/Mgal	1	61.58	69.87	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Manganese	D3-v1	2.06E-01	1.74E-01	3.79E-01	6.01E-02	Boer/Mgal	1	76.80	87.02	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Mercury	D3-v0	6.95E-05	6.95E-05	7.86E-05	6.04E-05	Boer/Mgal	1	12.89	14.59	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Nickel	D3-v1	6.85E-02	5.29E-02	1.15E-01	3.74E-02	Boer/Mgal	1	60.16	69.09	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Selenium	D3-v0	8.32E-02	8.97E-04	8.84E-02	4.81E-04	Boer/Mgal	1	2.73	3.08	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	Metals	Zinc	D3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	6.67	7.55	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Acenaphthene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Anthracene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Benz(a)anthracene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Benz(b)fluoranthene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Benz(g,h,i)perylene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Benz(k)fluoranthene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Chrysene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Dibenz(a,h)anthracene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Fluorene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Indeno(1,2,3-cd)pyrene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Naphthalene	A3-v0	2.17E-01	2.15E-01	2.59E-01	1.78E-01	Boer/Mgal	1	19.13	2.65	1.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Phenanthrene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	PAH	Pyrene	A3-v0	4.11E-04	4.15E-04	4.18E-04	4.00E-04	Boer/Mgal	1	2.44	2.76	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	VOC	Ammonia	E3-v0	2.25E-00	2.21E-00	2.35E-00	2.19E-00	Boer/Mgal	1	3.67	4.16	0.00
Boiler	Landfill gas	10300811	None	None	Boiler, Landfill Gas/1	VOC	Formaldehyde	C3-v0	1.21E-03	1.28E-03	1.34E-03	1.03E-03	Boer/Mgal	1	6.33	7.16	1.00
Boiler	Natural gas	10100601	None	None	Boiler, Natural Gas/1	VOC	Benz(a)anthracene	C2-v1	1.84E-02	1.37E-02	2.72E-02	6.40E-03	Boer/Mgal	1	83.37	71.71	0.00
Boiler	Natural gas	10100601	None	None	Boiler, Natural Gas/1	VOC	Acetone	C2-v0	9.97E-03	8.47E-03	1.47E-02	3.46E-03	Boer/Mgal	3	83.37	71.71	0.00
Boiler	Natural gas	10100601	None	None	Boiler, Natural Gas/1	VOC	Benzene	B2-v1	4.31E-03	2.15E-03	8.70E-03	2.07E-03	Boer/Mgal	3	76.41	48.92	0.00
Boiler	Natural gas	10100601	None	None	Boiler, Natural Gas/1	VOC	Formaldehyde	B2-v1	2.21E-01	6.98E-02	6.72E-01	1.22E-02	Boer/Mgal	3	128.05	82.35	1.00
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Arsenic	C2-v1	1.08E-03	1.11E-03	2.20E-03	3.96E-04	Boer/Mgal	3	51.81	33.85	1.00
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Beryllium	C2-v1	1.48E-05	8.10E-06	4.41E-05	5.83E-06	Boer/Mgal	3	101.51	66.32	0.82
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Cadmium	C2-v1	2.23E-04	1.24E-04	7.99E-04	6.48E-05	Boer/Mgal	3	103.79	67.77	1.00
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Chromium (Hex)	A2-v1	1.81E-04	9.22E-05	5.52E-04	5.60E-05	Boer/Mgal	3	95.13	62.15	0.90
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Chromium (Total)	C2-v1	6.09E-04	5.71E-04	1.01E-03	2.16E-04	Boer/Mgal	3	40.04	26.16	1.00
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Copper	C2-v1	1.40E-03	1.47E-03	1.99E-03	3.11E-04	Boer/Mgal	3	39.86	26.04	1.00
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Lead	C2-v1	1.61E-03	1.04E-03	3.79E-03	3.69E-04	Boer/Mgal	3	69.64	45.49	1.00
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Manganese	C2-v1	1.58E-03	1.38E-03	4.98E-03	5.64E-04	Boer/Mgal	3	66.76	56.68	1.00
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Mercury	C2-v1	3.06E-03	3.58E-03	5.57E-03	6.38E-04	Boer/Mgal	3	62.32	40.72	0.00
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Nickel	C2-v2	9.75E-02	8.90E-02	1.83E-01	2.21E-03	Boer/Mgal	3	55.88	36.51	0.87
Boiler	No 6 fuel oil	10100401	None	None	Boiler, Fuel Oil/1	Metals	Selenium	C2-v1	9.61E-04	6.30E-04	2.19E-03	2.50E-04	Boer/Mgal	3	69.79	45.80	0.87

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	AFB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD-%	Uncertainty %	Dat Ratio
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	Metals	Zinc	C2-v1	1.41E-02	9.11E-03	2.70E-02	5.70E-03	lb/Mgal	3	58.53	36.24	1.00
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Acenaphthene	C2-v2	3.11E-05	1.69E-05	9.76E-05	8.45E-07	lb/Mgal	4	11.74	66.62	0.96
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Acenaphthylene	C2-v1	1.08E-06	1.44E-06	1.44E-06	8.41E-07	lb/Mgal	4	68.49	10.92	0.00
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Anthracene	C2-v1	2.27E-06	1.83E-06	5.23E-05	8.41E-07	lb/Mgal	4	155.71	93.76	0.52
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Benzo(a)anthracene	C2-v1	2.08E-06	1.93E-06	1.93E-05	8.41E-07	lb/Mgal	4	19.30	10.92	0.00
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Benzo(b)fluoranthene	C2-v1	1.52E-06	1.05E-06	6.90E-05	8.41E-07	lb/Mgal	4	99.78	56.45	0.34
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Benzo(k)fluoranthene	C2-v1	1.29E-06	3.27E-06	1.65E-06	8.41E-07	lb/Mgal	4	57.64	32.61	0.23
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Chrysene	C2-v1	1.14E-06	1.05E-06	1.65E-06	8.41E-07	lb/Mgal	4	23.75	13.43	0.12
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Fluoranthene	C2-v2	3.24E-06	1.65E-06	1.44E-06	8.41E-07	lb/Mgal	4	148.20	83.85	0.87
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Fluorene	C2-v3	3.75E-06	3.42E-06	1.31E-05	8.41E-07	lb/Mgal	4	95.91	54.28	0.90
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Indeno(1,2,3-cd)pyrene	C2-v1	2.12E-03	1.93E-03	8.48E-03	8.41E-07	lb/Mgal	4	88.66	50.16	1.00
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Naphthalene	C2-v1	7.47E-06	6.32E-06	2.90E-05	8.41E-07	lb/Mgal	4	102.17	57.81	0.97
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	PAH	Phenanthrene	C2-v2	2.50E-06	1.34E-05	8.45E-07	8.41E-07	lb/Mgal	4	141.21	79.90	0.78
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	SVOC	Benzo(a)pyrene	C3-v1	4.14E-03	5.19E-03	2.06E-03	2.06E-03	lb/Mgal	1	43.45	49.16	0.00
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	VOC	Acetaldehyde	C3-v1	3.33E-03	2.93E-03	1.02E-02	2.84E-03	lb/Mgal	1	79.42	89.87	0.82
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	VOC	Benzene	C2-v2	3.49E-04	3.63E-04	3.19E-04	3.15E-04	lb/Mgal	3	7.29	4.76	0.00
Boiler	No. 6 fuel oil	10100401	None	None	Boiler, Fuel Oil	VOC	Formaldehyde	B2-v2	4.90E-02	4.95E-02	1.59E-01	2.58E-03	lb/Mgal	3	104.74	68.43	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin 4D 12378	C3-v0	6.33E-10	5.71E-10	7.93E-10	5.46E-10	lb/Mgal	1	20.50	23.20	0.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin 5D 12378	C3-v0	3.68E-10	2.79E-10	5.71E-10	2.61E-10	lb/Mgal	1	47.67	53.94	0.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin 6D 12378	C3-v0	3.68E-10	2.79E-10	5.71E-10	2.61E-10	lb/Mgal	1	47.67	53.94	0.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin 7D 1234678	C3-v0	3.68E-10	2.79E-10	5.71E-10	2.61E-10	lb/Mgal	1	47.67	53.94	0.25
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin 8D	C3-v1	3.12E-09	2.88E-09	5.19E-09	1.30E-09	lb/Mgal	1	62.77	71.03	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin 9D	C3-v1	7.50E-08	8.28E-08	1.23E-07	1.93E-08	lb/Mgal	1	69.66	78.83	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan 4F 2378	C3-v0	4.59E-10	5.48E-10	5.71E-10	2.61E-10	lb/Mgal	1	37.52	42.46	0.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan 5F 2378	C3-v0	4.59E-10	5.48E-10	5.71E-10	2.61E-10	lb/Mgal	1	37.52	42.46	0.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan 6F 123478	C3-v0	3.64E-10	2.88E-10	5.46E-10	2.61E-10	lb/Mgal	1	43.44	49.15	0.50
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan 6F 123578	C3-v0	2.79E-10	2.79E-10	2.88E-10	2.61E-10	lb/Mgal	1	45.1	5.10	0.33
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan 6F 234678	C3-v0	3.68E-10	2.79E-10	5.71E-10	2.61E-10	lb/Mgal	1	43.44	49.15	0.50
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan 7F 1234678	C3-v0	5.51E-10	5.71E-10	8.20E-10	2.61E-10	lb/Mgal	1	47.67	53.94	0.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan 7F 123478	C3-v0	4.44E-09	1.14E-09	2.09E-09	1.09E-09	lb/Mgal	1	38.89	44.01	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Antimony	C3-v1	7.15E-09	7.14E-09	1.04E-08	3.91E-09	lb/Mgal	1	45.27	51.23	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Arsenic	C1-v2	6.49E-04	1.05E-03	2.21E-03	9.53E-05	lb/Mgal	2	66.08	52.88	0.75
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Barium	B3-v2	1.51E-02	1.82E-02	2.80E-02	9.92E-04	lb/Mgal	2	136.06	58.19	0.51
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Beryllium	C1-v3	3.60E-03	3.84E-03	3.35E-03	7.93E-04	lb/Mgal	2	76.27	61.03	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Cadmium	C1-v3	3.06E-03	2.89E-03	5.02E-02	1.70E-06	lb/Mgal	7	234.39	100.22	0.84
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Chromium (Hex)	B1-v2	3.05E-04	2.05E-04	1.21E-03	1.96E-05	lb/Mgal	6	109.67	50.66	0.82
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Chromium (Total)	A3-v1	2.42E-03	2.51E-03	3.39E-03	8.77E-04	lb/Mgal	7	123.82	52.86	0.92
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Cobalt	C1-v3	4.74E-03	2.09E-03	1.95E-02	8.92E-04	lb/Mgal	7	103.88	44.43	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Copper	C1-v3	5.09E-03	7.19E-04	3.62E-02	5.00E-05	lb/Mgal	7	406.64	173.92	0.99
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Lead	C1-v3	2.92E-02	1.54E-03	5.47E-01	1.00E-04	lb/Mgal	7	161.14	38.92	0.72
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Manganese	A3-v0	5.13E-03	4.49E-03	7.05E-03	3.98E-03	lb/Mgal	7	32.99	37.32	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Mercury	D3-v0	1.26E-01	1.65E-02	4.70E-01	1.92E-04	lb/Mgal	1	26.90	30.44	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Nickel	C1-v3	2.86E-02	2.51E-02	3.74E-02	2.93E-02	lb/Mgal	7	277.17	119.54	0.62
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Phosphorus	B1-v3	3.55E-03	3.69E-04	4.49E-02	2.98E-02	lb/Mgal	2	89.06	52.86	0.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Selenium	C3-v1	8.09E-04	6.49E-04	1.85E-03	1.90E-04	lb/Mgal	2	60.74	68.73	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Silver	B3-v2	9.81E-04	1.14E-03	8.86E-03	6.94E-05	lb/Mgal	7	151.40	84.75	0.08
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Tellurium	A3-v1	7.68E-02	9.39E-02	1.19E-01	2.15E-02	lb/Mgal	7	148.03	83.31	0.31
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	Metals	Vanadium	C1-v3	9.73E-02	2.25E-02	1.09E-00	3.92E-02	lb/Mgal	7	246.53	106.29	1.00
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Zinc	B1-v2	2.10E-05	1.98E-06	8.15E-05	6.90E-07	lb/Mgal	7	148.03	83.31	0.31
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Acenaphthene	B1-v3	3.16E-05	1.98E-06	1.63E-04	3.92E-07	lb/Mgal	7	151.40	84.75	0.08
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Acenaphthylene	B1-v3	2.11E-05	1.50E-06	8.51E-05	1.60E-06	lb/Mgal	7	159.97	88.42	0.05
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Anthracene	B1-v3	2.02E-05	1.29E-06	8.51E-05	2.60E-06	lb/Mgal	7	132.57	96.70	0.16
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Benzo(a)anthracene	B1-v2	2.89E-05	3.47E-06	9.99E-06	9.99E-06	lb/Mgal	7	159.97	88.42	0.05
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Benzo(b)fluoranthene	C3-v1	1.60E-06	1.11E-06	4.15E-06	8.48E-07	lb/Mgal	5	119.99	60.72	0.04
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Benzo(k)fluoranthene	B1-v2	2.08E-05	2.02E-06	2.66E-06	1.48E-07	lb/Mgal	2	90.41	54.02	0.43
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Chrysene	B1-v2	2.76E-05	7.59E-07	8.51E-05	2.90E-09	lb/Mgal	7	153.75	65.68	0.02
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Fluoranthene	B1-v2	2.41E-05	5.87E-06	6.51E-05	5.45E-07	lb/Mgal	7	127.05	54.34	0.10
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Fluorene	B1-v2	2.07E-05	1.50E-06	6.51E-05	2.07E-07	lb/Mgal	7	154.53	66.09	0.02
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Indeno(1,2,3-cd)pyrene	B1-v2	2.69E-05	1.49E-05	9.64E-05	1.18E-06	lb/Mgal	7	116.15	49.68	0.39
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Naphthalene	B1-v2	2.04E-05	1.26E-05	8.51E-05	1.52E-07	lb/Mgal	7	158.02	67.59	0.01
Boiler	No. 6 fuel oil	10200401	None	None	Boiler, Fuel Oil	PAH	Naphthalene	B1-v4	6.30E-03	1.28E-04	5.09E-02	8.76E-06	lb/Mgal	7	239.51	102.01	1.00





TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor	Tests	RSD, %	Uncertainty	Dat Ratio
Boiler	No 6 fuel oil	10200403	None	None	Boiler, Fuel Oil	VOC	Chloroform	A3-v0	4.96E-03	5.00E-03	5.10E-03	4.95E-03	lb/Mgal	1	3.26	3.69	0.00
Boiler	No 6 fuel oil	10200403	None	None	Boiler, Fuel Oil	VOC	Formaldehyde	A1-v3	6.08E-02	2.22E-02	4.92E-01	1.05E-04	lb/Mgal	6	211.95	37.92	0.86
Boiler	No 6 fuel oil	10200403	None	None	Boiler, Fuel Oil	VOC	Propylene	A3-v0	2.19E-02	2.21E-02	2.25E-02	2.11E-02	lb/Mgal	1	3.26	3.69	0.00
Boiler	No 6 fuel oil	10200403	None	None	Boiler, Fuel Oil	VOC	Toluene	A3-v1	7.30E-03	5.85E-03	1.23E-02	4.92E-03	lb/Mgal	2	40.73	32.59	0.61
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	VOC	Xylenes (Total)	A3-v1	9.28E-03	1.09E-02	1.14E-02	7.42E-03	lb/Mgal	2	37.75	30.21	0.41
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin, 4D	C3-v0	6.33E-10	5.71E-10	7.83E-10	5.49E-10	lb/Mgal	1	20.50	33.20	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin, 2,3,7,8	C3-v0	3.68E-10	2.73E-10	5.71E-10	2.61E-10	lb/Mgal	1	47.67	53.94	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin, 6D	C3-v0	3.68E-10	2.73E-10	5.71E-10	2.61E-10	lb/Mgal	1	47.67	53.94	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin, 8D	C3-v0	3.68E-10	2.73E-10	5.71E-10	2.61E-10	lb/Mgal	1	47.67	53.94	0.25
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin, 7D	C3-v0	3.12E-09	2.82E-09	5.19E-09	1.30E-09	lb/Mgal	1	62.77	71.03	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Dioxin, 8D	C3-v1	7.50E-08	1.23E-08	2.32E-08	1.30E-08	lb/Mgal	1	69.66	78.83	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 4F	C3-v0	4.59E-10	8.33E-10	1.09E-09	5.71E-10	lb/Mgal	1	32.18	36.42	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 5F	C3-v0	4.59E-10	8.33E-10	1.09E-09	5.71E-10	lb/Mgal	1	32.18	36.42	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 5F	C3-v0	3.98E-10	5.48E-10	5.71E-10	2.61E-10	lb/Mgal	1	37.52	42.46	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 6F	C3-v0	3.98E-10	5.48E-10	5.71E-10	2.61E-10	lb/Mgal	1	37.52	42.46	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 6F	C3-v0	3.98E-10	5.48E-10	5.71E-10	2.61E-10	lb/Mgal	1	37.52	42.46	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 7F	C3-v0	3.98E-10	5.48E-10	5.71E-10	2.61E-10	lb/Mgal	1	43.44	49.15	0.50
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 7F	C3-v0	3.98E-10	5.48E-10	5.71E-10	2.61E-10	lb/Mgal	1	43.44	49.15	0.50
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 7F	C3-v0	3.98E-10	5.48E-10	5.71E-10	2.61E-10	lb/Mgal	1	47.67	53.94	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 7F	C3-v0	1.44E-09	1.14E-09	2.09E-09	1.09E-09	lb/Mgal	1	50.85	57.54	0.50
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 7F	C3-v1	4.94E-10	7.14E-09	8.57E-10	2.61E-10	lb/Mgal	1	39.89	40.11	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Dioxin/Furan	Furan, 8F	C3-v1	7.15E-09	1.14E-09	1.04E-08	3.91E-09	lb/Mgal	1	73.43	83.10	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Antimony	B3-v2	1.09E-03	1.05E-03	2.21E-03	9.53E-05	lb/Mgal	1	45.27	51.23	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Asenic	B3-v2	6.49E-04	1.80E-04	3.64E-03	1.67E-05	lb/Mgal	2	66.08	52.88	0.75
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Beryllium	B3-v2	4.59E-04	1.82E-02	3.85E-02	2.29E-04	lb/Mgal	2	78.27	61.03	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Bismuth	B1-v3	4.59E-04	3.84E-05	3.35E-03	7.83E-06	lb/Mgal	2	234.33	100.22	0.94
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Calcium	B1-v4	3.60E-03	2.80E-04	5.02E-02	1.70E-06	lb/Mgal	6	109.67	131.00	0.85
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Chromium (Hex)	B1-v3	3.50E-04	2.05E-04	1.21E-03	1.86E-05	lb/Mgal	7	123.92	52.86	0.82
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Chromium (Total)	B1-v3	1.70E-03	4.18E-04	6.85E-03	3.75E-06	lb/Mgal	1	55.77	63.11	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Cobalt	A3-v1	2.24E-03	2.51E-03	3.33E-03	8.77E-04	lb/Mgal	1	103.89	41.43	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Copper	C1-v2	4.74E-03	2.09E-03	1.85E-02	5.00E-05	lb/Mgal	7	208.41	89.14	0.88
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Lead	C1-v3	5.08E-03	7.10E-04	3.82E-02	8.92E-04	lb/Mgal	7	406.64	173.92	0.89
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Manganese	C1-v3	2.92E-02	1.54E-03	5.47E-01	1.80E-04	lb/Mgal	7	161.14	63.92	0.72
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Mercury	A3-v0	2.08E-04	7.88E-05	1.43E-03	5.22E-06	lb/Mgal	7	406.64	173.92	0.89
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Nickel	C1-v3	1.36E-03	4.49E-03	7.05E-03	3.86E-03	lb/Mgal	7	161.14	63.92	0.72
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Phosphorus	D3-v0	2.88E-02	2.51E-02	3.74E-02	2.33E-02	lb/Mgal	1	26.90	30.44	0.96
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Selenium	B3-v1	8.91E-04	6.49E-04	1.85E-03	1.49E-04	lb/Mgal	2	89.48	71.27	0.94
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Silver	B3-v1	8.91E-04	6.49E-04	1.85E-03	1.49E-04	lb/Mgal	2	89.48	71.27	0.94
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Thallium	A3-v1	7.88E-02	9.35E-02	1.13E-01	2.41E-02	lb/Mgal	2	60.74	65.95	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Vanadium	C1-v3	9.73E-02	2.52E-02	1.09E-01	1.83E-02	lb/Mgal	7	248.53	106.29	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	Metal	Zinc	B1-v2	2.10E-05	1.95E-06	8.51E-05	6.99E-07	lb/Mgal	7	151.40	64.75	0.06
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Acenaphthene	B1-v2	2.10E-05	1.95E-06	8.51E-05	6.99E-07	lb/Mgal	7	146.03	63.31	0.31
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Acenaphthylene	B1-v2	2.10E-05	1.95E-06	8.51E-05	6.99E-07	lb/Mgal	7	150.72	64.46	0.05
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Anthracene	B1-v3	2.02E-05	1.28E-06	8.51E-05	5.80E-06	lb/Mgal	7	159.87	68.42	0.01
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Benzo[a]anthracene	B1-v3	2.38E-05	2.37E-06	8.51E-05	2.60E-06	lb/Mgal	7	132.57	56.70	0.16
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Benzo[b]fluoranthene	B1-v2	2.89E-05	3.48E-06	6.51E-05	9.98E-07	lb/Mgal	5	119.99	60.72	0.04
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Benzo[k]fluoranthene	C3-v1	9.40E-07	7.21E-07	4.15E-06	1.93E-07	lb/Mgal	2	80.01	64.02	0.43
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Benzo[e]pyrene	B1-v2	2.08E-05	2.02E-06	6.51E-05	1.65E-07	lb/Mgal	2	89.48	79.60	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Benzo[g]huanthrene	B1-v4	2.78E-05	7.58E-07	8.51E-05	2.92E-06	lb/Mgal	5	129.79	65.68	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Chrysene	B1-v2	2.41E-05	1.50E-06	8.51E-05	5.45E-07	lb/Mgal	7	127.06	54.34	0.17
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Dibenz[a,h]anthracene	B1-v2	2.68E-05	1.49E-05	6.45E-05	8.49E-05	lb/Mgal	7	154.53	66.08	0.02
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Fluorene	B1-v1	3.21E-05	8.18E-06	8.51E-05	8.49E-05	lb/Mgal	7	116.15	49.68	0.35
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Indeno[1,2,3-cd]pyrene	B1-v2	2.04E-05	1.28E-06	8.51E-05	1.92E-07	lb/Mgal	7	159.02	67.59	0.67
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Naphthalene	B1-v4	4.30E-03	1.28E-04	5.08E-02	1.92E-07	lb/Mgal	7	238.51	102.01	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	Phenanthrene	B1-v2	4.70E-05	1.82E-06	9.51E-05	1.93E-06	lb/Mgal	7	148.69	62.74	0.07
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	PAH	2-Methylanthracene	C3-v2	7.99E-07	2.72E-07	3.99E-07	1.63E-06	lb/Mgal	2	102.17	81.75	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	SVOC	2-Chloronaphthalene	A3-v2	1.42E-03	8.18E-05	1.94E-04	9.10E-06	lb/Mgal	2	68.59	77.52	1.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	SVOC	Ethylbenzene	C3-v2	1.14E-02	5.42E-08	2.68E-06	3.77E-08	lb/Mgal	2	206.85	165.51	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	VOC	Perylene	A3-v2	1.14E-02	1.18E-02	1.10E-02	3.77E-08	lb/Mgal	2	3.26	3.69	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	VOC	1,3-Butadiene	A3-v0	3.82E-03	3.82E-03	5.20E-03	1.43E-03	lb/Mgal	2	46.55	37.75	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	VOC	Acrolein	B1-v2	7.11E-03	4.47E-03	2.88E-02	4.26E-04	lb/Mgal	7	117.13	47.67	0.77
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel Oil	VOC	Benzo[a]pyrene	A3-v0	4.96E-03	5.00E-03	5.10E-03	4.78E-03	lb/Mgal	1	3.26	3.69	0.00
Boiler	Residual fuel	10200401	None	None	Boiler, Fuel												

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor	Test	RSD, %	Uncertainty, %	Det Ratio
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 4D 2378	A3-v0	6.75E-12	6.74E-12	9.74E-12	7.8E-12	barbon	1	44.13	49.93	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 4D Total	A3-v1	1.57E-09	1.56E-09	2.44E-09	3.94E-10	barbon	1	95.36	107.91	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 5D 12378	A3-v1	1.57E-11	1.06E-11	3.32E-11	3.12E-12	barbon	1	100.03	113.19	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 5D Total	A3-v1	9.84E-10	6.65E-10	2.08E-09	3.94E-10	barbon	1	95.57	106.14	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 6D 123478	A3-v0	2.56E-11	1.25E-11	5.54E-11	8.91E-12	barbon	1	101.06	114.36	0.72
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 6D Total	A3-v0	3.74E-11	2.39E-11	7.75E-11	1.07E-11	barbon	1	94.71	107.17	0.80
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 7D 123478	A3-v1	2.72E-09	1.24E-09	5.26E-09	9.04E-12	barbon	1	109.76	124.21	0.78
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 7D Total	A3-v1	5.74E-10	4.56E-10	8.85E-10	7.34E-10	barbon	1	110.86	125.47	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 8D	A3-v1	1.08E-09	8.65E-10	1.94E-09	7.94E-10	barbon	1	47.85	53.92	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 4F 2378	A3-v1	3.74E-11	3.01E-11	8.48E-09	6.04E-09	barbon	1	13.39	15.15	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 5F 2378	A3-v0	9.75E-10	1.13E-09	1.33E-09	4.97E-10	barbon	1	32.81	36.90	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 5F Total	A3-v0	2.47E-11	1.81E-11	3.98E-11	1.39E-11	barbon	1	46.24	52.33	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 6F 23478	A3-v0	3.68E-11	2.39E-11	3.98E-11	1.39E-11	barbon	1	58.99	66.75	0.80
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 6F Total	A3-v0	2.68E-11	4.3E-10	4.78E-10	1.87E-10	barbon	1	51.92	58.75	0.83
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 6F 123478	A3-v0	2.72E-11	3.28E-11	3.78E-11	1.02E-11	barbon	1	43.03	48.69	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 6F 123478	A3-v1	8.14E-12	8.23E-12	1.04E-11	6.30E-12	barbon	1	54.38	61.53	0.87
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 6F 23478	A3-v0	3.14E-11	2.38E-11	5.09E-11	1.94E-11	barbon	1	24.71	27.96	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 7F 123478	A3-v0	2.67E-10	2.66E-10	3.69E-10	1.65E-10	barbon	1	38.40	43.45	0.79
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 7F Total	A3-v0	1.98E-10	1.44E-10	2.17E-10	1.62E-10	barbon	1	15.75	17.83	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 8F	A3-v0	1.63E-11	1.46E-11	2.07E-11	1.37E-11	barbon	1	23.30	26.36	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dioxin 8F Total	A3-v0	4.92E-10	5.09E-10	5.22E-10	3.10E-10	barbon	1	15.00	16.97	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Acenaphthene	A3-v0	3.72E-07	3.75E-07	3.84E-07	4.45E-07	barbon	1	8.35	9.45	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Anthracene	A3-v0	3.07E-07	3.06E-07	3.16E-07	1.20E-07	barbon	1	45.95	51.31	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Benzo[a]anthracene	A3-v0	1.0E-08	1.0E-08	1.13E-08	1.05E-08	barbon	1	3.50	3.96	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Benzo[b]fluoranthene	A3-v0	1.0E-08	1.0E-08	1.13E-08	1.05E-08	barbon	1	3.50	3.96	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Benzo[k]fluoranthene	A3-v0	4.09E-08	4.21E-08	4.43E-08	1.92E-08	barbon	1	13.46	15.23	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Benzo[e]pyrene	A3-v0	1.0E-08	1.0E-08	1.13E-08	1.05E-08	barbon	1	17.69	19.85	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Chrysene	A3-v0	8.10E-08	8.17E-08	8.35E-08	7.80E-08	barbon	1	17.63	19.85	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Dibenz[ah]anthracene	A3-v1	1.0E-08	1.0E-08	1.13E-08	1.05E-08	barbon	1	3.50	3.96	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Fluoranthene	A3-v1	9.86E-07	9.93E-07	1.02E-06	9.48E-07	barbon	1	3.50	3.96	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Indeno[1,2,3-cd]pyrene	A3-v0	6.79E-07	6.84E-07	7.00E-07	6.53E-07	barbon	1	3.50	3.96	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Naphthalene	A3-v0	2.28E-05	2.32E-05	2.48E-05	2.03E-05	barbon	1	10.96	11.38	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Phenanthrene	A3-v0	5.48E-07	5.52E-07	5.64E-07	5.27E-07	barbon	1	3.50	3.96	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Pyrene	A3-v0	3.23E-10	3.48E-10	3.58E-10	2.66E-10	barbon	1	15.44	17.47	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	PCB Dichlorinated biphenyls	A3-v1	8.77E-09	7.34E-09	1.44E-08	4.56E-09	barbon	1	57.80	65.41	0.35
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	PCB Hexachlorinated biphenyls	A3-v1	1.27E-09	1.35E-09	1.83E-09	6.99E-09	barbon	1	46.61	52.74	0.83
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	PCB Heptachlorinated biphenyls	A3-v1	5.14E-09	5.34E-09	6.08E-09	3.99E-09	barbon	1	20.71	23.44	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	PCB Monochlorinated biphenyls	A3-v1	3.89E-09	4.21E-09	4.58E-09	2.89E-09	barbon	1	23.63	25.61	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	PCB Nonchlorinated biphenyls	A3-v1	1.04E-10	1.09E-10	1.13E-10	8.86E-11	barbon	1	15.86	17.42	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	PCB Octachlorinated biphenyls	A3-v0	1.75E-10	1.78E-10	1.85E-10	1.02E-10	barbon	1	16.88	18.32	0.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	PCB Pentachlorinated biphenyls	A3-v0	2.85E-08	2.44E-08	3.91E-08	2.0E-08	barbon	1	15.00	16.97	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	PCB Trichlorinated biphenyls	A3-v0	3.16E-08	2.89E-08	3.69E-08	2.68E-08	barbon	1	32.51	38.78	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	2-Methylnaphthalene	A3-v0	3.29E-07	3.31E-07	3.39E-07	3.16E-07	barbon	1	14.79	16.74	1.00
Boiler	Wood	10100903	ESPM/C	None	Boiler, Wood/1	Dioxin/Furan	Formaldehyde	A3-v1	6.42E-04	6.48E-04	1.09E-03	2.18E-04	barbon	1	3.50	3.96	0.00
Boiler	Wood	10100903	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 4D 2378	D3-v2	5.01E-11	4.98E-11	1.14E-10	7.52E-12	barbon production	2	84.01	71.23	0.23
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 4D Total	D3-v1	2.20E-09	1.96E-09	6.14E-09	2.32E-11	barbon production	2	118.61	94.90	1.00
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 5D 12378	D3-v1	8.74E-11	9.31E-11	6.1E-10	2.04E-11	barbon production	2	81.98	65.60	0.60
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 5D Total	D3-v1	1.95E-09	9.37E-10	2.75E-09	1.42E-10	barbon production	2	99.16	76.34	0.93
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 6D 123478	D3-v1	6.39E-11	6.14E-11	1.19E-10	1.42E-11	barbon production	2	68.83	55.08	0.81
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 6D Total	D3-v1	8.45E-11	9.88E-11	1.37E-10	1.42E-11	barbon production	2	83.53	66.84	0.87
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 7D 123478	D3-v2	9.97E-11	8.71E-11	1.78E-10	1.72E-11	barbon production	2	85.66	68.54	0.80
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 7D Total	D3-v2	2.91E-10	2.39E-10	6.95E-10	1.57E-11	barbon production	2	105.37	84.31	0.99
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 8D	D3-v2	4.97E-10	3.98E-10	1.28E-09	1.57E-11	barbon production	2	101.46	81.19	1.00
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 4F 2378	D3-v2	1.08E-09	8.98E-10	2.90E-09	9.18E-11	barbon production	2	81.43	73.18	1.00
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 5F Total	D3-v2	4.29E-08	3.6E-08	1.09E-07	1.42E-10	barbon production	2	112.56	90.07	1.00
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 6F Total	D3-v2	4.30E-10	3.07E-10	1.23E-09	1.72E-11	barbon production	2	118.26	83.02	0.99
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 6F 123478	D3-v2	5.66E-10	4.28E-10	1.49E-09	1.45E-11	barbon production	2	112.66	90.14	1.00
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 6F Total	D3-v2	7.58E-09	5.75E-09	1.13E-08	1.72E-11	barbon production	2	177.22	83.79	1.00
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 7F 123478	D3-v2	3.96E-10	2.49E-10	1.31E-09	7.28E-12	barbon production	2	130.04	104.05	0.99
Cement Kiln	Coal	30500606	FF	None	Cement Kiln, Coal/1	Dioxin/Furan	Dioxin 7F Total	D3-v2	1.37E-10	9.57E-11	4.21E-10	5.42E-12	barbon production	2	121.18	98.98	0.98

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Ratio	Mean	Minimum	Maximum	Emission Factor Unit	Tests	RSD%,	Uncertainty Inty.,	Ratio
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Dioxin/Furan	Furan,6F 123789	D3-v1	2.74E-11	2.50E-11	5.09E-11	bar/on production	2	67.88	34.31	0.27
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Dioxin/Furan	Furan,6F 234678	D3-v2	1.32E-10	9.38E-11	3.86E-10	bar/on production	2	116.54	54.25	0.97
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Dioxin/Furan	Furan,6F Total	D3-v3	1.51E-09	9.38E-10	5.00E-09	bar/on production	2	130.18	70.68	0.97
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Dioxin/Furan	Furan,7F 12345678	D3-v2	1.10E-10	3.15E-11	7.85E-12	bar/on production	2	87.10	44.19	0.97
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Dioxin/Furan	Furan,7F 1234789	D3-v1	3.57E-11	1.13E-11	6.77E-11	bar/on production	2	72.40	57.93	0.29
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Dioxin/Furan	Furan,7F Total	D3-v2	1.44E-10	1.05E-10	1.18E-11	bar/on production	2	102.39	81.87	0.97
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Antenic	D3-v2	3.02E-06	1.08E-11	1.92E-10	bar/on production	2	97.32	77.87	0.65
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Beryllium	D3-v1	1.77E-06	8.93E-07	6.97E-06	bar/on production	2	81.90	73.06	0.81
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Chromium	D3-v2	2.25E-06	7.34E-06	4.47E-07	bar/on production	2	122.29	97.85	0.81
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Chromium (Hex)	D3-v2	1.46E-06	6.00E-07	6.44E-07	bar/on production	2	60.81	48.86	0.51
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Chromium (Total)	D3-v0	6.70E-07	1.88E-06	4.34E-06	bar/on production	2	48.89	42.85	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Copper	D3-v1	2.43E-06	1.27E-05	1.61E-06	bar/on production	2	25.35	28.89	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Lead	D3-v2	8.00E-06	2.82E-06	4.19E-06	bar/on production	2	40.59	32.24	0.62
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Manganese	D3-v2	9.70E-05	1.96E-05	3.00E-03	bar/on production	2	139.85	111.90	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Mercury	D3-v1	5.51E-04	3.27E-05	2.00E-03	bar/on production	2	217.94	174.39	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Nickel	D3-v2	5.44E-06	1.40E-05	2.70E-07	bar/on production	2	50.05	40.05	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Phosphorus	D3-v1	1.91E-04	1.59E-04	2.14E-04	bar/on production	2	78.94	87.07	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Selenium	D3-v2	4.68E-06	1.41E-06	4.26E-07	bar/on production	2	115.44	92.37	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Strontium	D3-v2	1.94E-03	6.99E-04	3.76E-03	bar/on production	2	140.95	112.78	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	Metals	Zinc	D3-v2	7.80E-06	1.01E-07	9.10E-07	bar/on production	2	128.38	101.12	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Acenaphthene	D3-v1	2.95E-07	1.01E-07	9.10E-07	bar/on production	2	2.51	2.84	0.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Acenaphthylene	D3-v1	2.84E-06	1.84E-06	9.52E-06	bar/on production	2	115.44	92.37	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Anthracene	D3-v1	2.11E-07	1.51E-07	6.14E-07	bar/on production	2	110.23	88.20	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Benzo(a)anthracene	D3-v1	1.96E-08	1.49E-08	3.07E-08	bar/on production	2	43.34	42.47	0.41
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Benzo(b)fluoranthene	D3-v1	1.95E-07	9.97E-08	6.57E-07	bar/on production	2	137.44	109.97	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Benzo(k)fluoranthene	D3-v1	1.94E-07	5.95E-08	4.60E-07	bar/on production	2	129.80	146.88	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Benzo(g,h,i)perylene	D3-v2	1.27E-08	8.74E-09	3.61E-08	bar/on production	2	111.30	81.06	0.75
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Benzo(a)pyrene	D3-v2	1.18E-06	5.34E-07	4.76E-06	bar/on production	2	154.95	129.88	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Chrysene	D3-v0	1.46E-06	1.46E-06	1.50E-06	bar/on production	2	61.06	48.86	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Dibenz(a,h)anthracene	D3-v1	9.59E-07	2.98E-06	3.61E-06	bar/on production	2	57.98	46.40	0.02
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Fluorene	D3-v1	9.65E-09	1.93E-08	1.78E-06	bar/on production	2	170.75	61.57	0.09
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Indeno(1,2,3-c)pyrene	D3-v1	6.84E-05	1.72E-05	1.82E-05	bar/on production	2	12.16	9.73	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	PAH	Phenanthrene	D3-v0	3.69E-06	4.36E-06	4.82E-06	bar/on production	2	84.40	67.53	1.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	VOC	Acetaldehyde	D3-v0	2.03E-06	4.63E-06	6.93E-04	bar/on production	2	83.63	72.00	0.90
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	VOC	Benzene	D3-v0	4.03E-04	5.32E-04	6.93E-04	bar/on production	2	43.30	48.00	0.00
Cement Kiln	Coal	FF	None	Cement Kiln, Coal/	VOC	Formaldehyde	D3-v2	5.73E-05	3.23E-05	1.42E-03	bar/on production	2	83.00	66.41	0.95
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Dioxin,4D 2378	Dioxin,4D Total	E3-v0	4.65E-13	3.99E-13	8.94E-13	bar/on production	1	82.24	93.06	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Dioxin,4D Total	Dioxin,4D Total	E3-v0	4.65E-13	3.99E-13	8.94E-13	bar/on production	1	82.24	93.06	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Dioxin,5D 12378	Dioxin,5D Total	E3-v0	4.38E-13	3.62E-13	7.96E-13	bar/on production	1	62.33	70.53	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Dioxin,5D Total	Dioxin,5D Total	E3-v0	4.38E-13	3.62E-13	7.96E-13	bar/on production	1	62.33	70.53	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Dioxin,6D 123478	Dioxin,6D Total	E3-v0	4.38E-13	3.62E-13	7.96E-13	bar/on production	1	63.39	71.73	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Dioxin,6D Total	Dioxin,6D Total	E3-v0	4.38E-13	3.62E-13	7.96E-13	bar/on production	1	63.39	71.73	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Dioxin,7D 123478	Dioxin,7D Total	E3-v0	4.38E-13	3.62E-13	7.96E-13	bar/on production	1	63.39	71.73	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Dioxin,7D Total	Dioxin,7D Total	E3-v0	4.38E-13	3.62E-13	7.96E-13	bar/on production	1	63.39	71.73	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Dioxin,8D	Dioxin,8D	E3-v0	3.01E-11	2.95E-11	3.98E-11	bar/on production	1	11.32	12.81	1.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,4F 2378	Furan,4F Total	E3-v0	3.15E-13	1.12E-13	7.29E-13	bar/on production	1	114.01	129.01	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,4F Total	Furan,4F Total	E3-v0	3.15E-13	1.12E-13	7.29E-13	bar/on production	1	114.01	129.01	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,5F 12378	Furan,5F Total	E3-v0	3.25E-13	4.05E-13	4.43E-13	bar/on production	1	76.76	80.36	0.82
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,5F Total	Furan,5F Total	E3-v0	3.25E-13	4.05E-13	4.43E-13	bar/on production	1	76.76	80.36	0.82
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,6F 123478	Furan,6F Total	E3-v0	3.27E-13	2.07E-13	6.04E-13	bar/on production	1	53.13	60.12	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,6F Total	Furan,6F Total	E3-v0	3.27E-13	2.07E-13	6.04E-13	bar/on production	1	53.13	60.12	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,7F 123478	Furan,7F Total	E3-v0	3.27E-13	2.07E-13	6.04E-13	bar/on production	1	73.36	83.91	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,7F Total	Furan,7F Total	E3-v0	3.27E-13	2.07E-13	6.04E-13	bar/on production	1	73.36	83.91	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,8F 234678	Furan,8F Total	E3-v0	3.27E-13	2.07E-13	6.04E-13	bar/on production	1	73.36	83.91	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,8F Total	Furan,8F Total	E3-v0	3.27E-13	2.07E-13	6.04E-13	bar/on production	1	73.36	83.91	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,9F 1234678	Furan,9F Total	E3-v0	6.55E-13	6.12E-13	9.57E-13	bar/on production	1	43.28	48.57	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Furan,9F Total	Furan,9F Total	E3-v0	6.55E-13	6.12E-13	9.57E-13	bar/on production	1	43.28	48.57	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	HCl	HCl	E3-v1	1.28E-12	1.18E-12	1.99E-12	bar/on production	1	58.29	62.57	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Antenic	Antenic	E3-v0	4.98E-05	4.30E-05	5.99E-05	bar/on production	1	27.80	31.58	1.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Beryllium	Beryllium	E3-v0	2.59E-06	2.58E-06	2.91E-06	bar/on production	1	11.87	13.44	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Cadmium	Cadmium	E3-v0	2.90E-07	1.90E-07	5.71E-06	bar/on production	1	81.38	92.03	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Chromium (Hex)	Chromium (Hex)	E3-v0	2.90E-07	1.90E-07	5.71E-06	bar/on production	1	81.38	92.03	0.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Chromium (Total)	Chromium (Total)	E3-v0	1.96E-06	1.82E-06	2.37E-06	bar/on production	1	23.76	27.14	1.00
Cement Kiln	Coal/Coal/	FF	None	Dioxin/Furan	Copper	Copper	E3-v0	3.91E-08	4.12E-08	4.56E-08	bar/on production	1	24.88	27.81	1.00

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests RSD, %	Uncertainty Int., %	Det Ratio
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	Metals	Lead	E3-v1	1.24E-06	8.91E-07	2.34E-06	5.03E-07	ba/ton production	1	77.68	17.90
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	Metals	Manganese	E3-v1	8.85E-06	8.16E-06	1.04E-05	8.03E-06	ba/ton production	1	14.88	16.84
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	Metals	Mercury	E3-v0	3.83E-06	3.35E-06	4.93E-06	3.20E-06	ba/ton production	1	25.09	28.39
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	Metals	Nickel	E3-v0	2.60E-05	2.58E-05	2.83E-05	2.29E-05	ba/ton production	1	12.24	13.86
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	Metals	Selenium	E3-v0	3.78E-06	3.57E-06	4.69E-06	3.11E-06	ba/ton production	1	21.11	23.89
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	Metals	Zinc	E3-v1	1.02E-05	8.54E-06	1.43E-05	7.61E-06	ba/ton production	1	35.29	39.74
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Acenaphthene	E3-v1	1.95E-07	1.49E-07	4.05E-07	3.14E-08	ba/ton production	1	97.96	110.73
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Acenaphthylene	E3-v1	2.21E-07	1.65E-07	5.81E-07	1.95E-07	ba/ton production	1	140.87	159.41
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Anthracene	E3-v2	1.25E-07	2.48E-07	4.74E-07	7.4E-08	ba/ton production	1	136.07	188.58
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Benzo(a)anthracene	E3-v0	8.19E-10	7.41E-10	9.87E-10	7.28E-10	ba/ton production	1	33.37	37.76
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Benzo(b)fluoranthene	E3-v0	2.19E-09	2.41E-09	3.43E-09	1.89E-09	ba/ton production	1	20.22	22.10
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Benzo(k)fluoranthene	E3-v1	1.84E-08	4.23E-09	4.86E-08	2.47E-09	ba/ton production	1	17.97	21.60
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Benzo(g,h)perylene	E3-v1	1.45E-09	1.66E-09	1.72E-09	6.24E-10	ba/ton production	1	14.84	16.61
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Benzo(i)perylene	E3-v0	3.98E-09	3.63E-09	5.66E-09	2.34E-09	ba/ton production	1	27.88	31.85
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Chrysene	E3-v0	3.03E-09	3.12E-09	3.84E-09	2.12E-09	ba/ton production	1	28.62	32.38
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Dibenz(a,h)anthracene	E3-v1	1.19E-09	1.20E-09	1.46E-09	8.17E-10	ba/ton production	1	43.81	49.57
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Fluorene	E3-v1	1.64E-07	1.68E-07	1.98E-07	6.57E-08	ba/ton production	1	22.86	25.97
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Indeno(1,2,3-cd)pyrene	E3-v1	3.51E-07	3.80E-07	6.28E-07	4.35E-08	ba/ton production	1	54.36	61.52
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Naphthalene	E3-v1	1.62E-09	1.62E-09	2.34E-09	9.17E-10	ba/ton production	1	83.78	94.78
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Phenanthrene	E3-v1	3.24E-05	2.68E-05	3.73E-05	2.39E-05	ba/ton production	1	43.81	49.57
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	PAH	Pyrene	E3-v1	7.44E-08	6.88E-08	7.73E-08	3.98E-08	ba/ton production	1	113.47	128.40
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	VOC	Benzene	E3-v1	8.24E-08	8.93E-08	1.04E-07	1.09E-08	ba/ton production	1	59.16	66.84
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	VOC	Toluene	E3-v0	2.66E-04	3.39E-04	4.39E-04	2.12E-04	ba/ton production	1	25.04	28.34
Cement Kiln	Coal/coke	30500606	FF	None	Cement Kiln, Coal/Coke/1	VOC	Xylenes	E3-v1	8.65E-06	7.91E-06	1.03E-05	5.72E-06	ba/ton production	1	17.44	19.73
Coating Operation	Green PE (15% chromum)	40200110	BF	H.V.P. Spray Guns	Coating, Green PE/1	Metals	Chromium (Hex)	E3-v1	1.75E-04	1.48E-04	3.04E-04	7.20E-06	ba/gal paint	1	67.70	76.80
Coating Operation	Green PE (15% chromum)	40200110	BF	H.V.P. Spray Guns	Coating, Green PE/2	Metals	Chromium (Hex)	E3-v1	3.32E-04	3.81E-04	4.06E-04	2.13E-04	ba/gal paint	1	31.53	35.67
Coating Operation	Green PE (15% chromum)	40200110	PA	H.V.P. Spray Guns	Coating, Green PE/2	Metals	Chromium (Hex)	E3-v0	3.10E-05	2.75E-05	5.77E-05	1.47E-05	ba/gal paint	2	65.32	64.02
Coating Operation	Green PE (15% chromum)	40200110	PA	H.V.P. Spray Guns	Coating, Green PE/2	Metals	Chromium (Total)	E3-v0	1.19E-04	1.15E-04	1.85E-04	8.19E-05	ba/gal paint	2	45.10	44.20
Coating Operation	Green PE (15% chromum)	40200110	WC	H.V.P. Spray Guns	Coating, Green PE/3	Metals	Chromium (Total)	E3-v0	4.31E-06	4.31E-06	5.04E-06	3.59E-06	ba/gal paint	1	23.93	33.17
Coating Operation	Green PE (15% chromum)	40200110	WC	H.V.P. Spray Guns	Coating, Green PE/3	Metals	Chromium (Hex)	E3-v0	4.15E-05	4.73E-05	3.57E-05	2.57E-05	ba/gal paint	1	19.81	27.45
Coating Operation	Green PE (15% chromum)	40200110	WT	H.V.P. Spray Guns	Coating, Green PE/4	Metals	Chromium (Total)	E3-v0	1.98E-05	1.65E-05	5.11E-05	3.21E-05	ba/gal paint	1	24.98	28.26
Coating Operation	Green PE (15% chromum)	40200110	WT	H.V.P. Spray Guns	Coating, Green PE/4	Metals	Chromium (Hex)	E3-v1	1.28E-03	1.54E-03	1.83E-03	4.80E-04	ba/gal paint	1	55.28	62.55
Coating Operation	Green primer (25.35% chromate)	40200610	BF	H.V.P. Spray Guns	Coating, Green Primer/1	Metals	Chromium (Total)	E3-v1	1.35E-03	1.95E-03	1.95E-03	7.01E-04	ba/gal paint	1	47.05	53.44
Coating Operation	Green primer (25.35% chromate)	40200610	BF	H.V.P. Spray Guns	Coating, Green Primer/2	Metals	Chromium (Total)	E3-v2	2.87E-04	2.24E-04	6.79E-04	2.06E-05	ba/gal paint	2	111.31	109.41
Coating Operation	Green primer (25.35% chromate)	40200610	PA	H.V.P. Spray Guns	Coating, Green Primer/2	Metals	Chromium (Total)	E3-v2	7.32E-04	5.82E-04	1.71E-03	5.92E-05	ba/gal paint	2	106.55	104.10
Coating Operation	Green primer (25.35% chromate)	40200610	WC	Conventional Spray	Coating, Green Primer/3	Metals	Chromium (Total)	E3-v0	1.42E-03	1.42E-03	1.42E-03	1.39E-03	ba/gal paint	1	29.03	40.23
Coating Operation	Green primer (25.35% chromate)	40200610	WC	Conventional Spray	Coating, Green Primer/3	Metals	Chromium (Hex)	E3-v0	2.93E-04	2.63E-04	3.69E-04	1.57E-04	ba/gal paint	1	57.22	79.30
Coating Operation	Green primer (25.35% chromate)	40200610	WC	H.V.P. Spray Guns	Coating, Green Primer/4	Metals	Chromium (Total)	E3-v0	2.93E-04	2.63E-04	3.69E-04	1.57E-04	ba/gal paint	1	25.10	37.90
Coating Operation	Green primer (25.35% chromate)	40200610	WC	H.V.P. Spray Guns	Coating, Green Primer/4	Metals	Chromium (Hex)	E3-v0	1.03E-03	1.03E-03	1.03E-03	4.12E-04	ba/gal paint	1	54.03	61.14
Coating Operation	Green primer (25.35% chromate)	40200610	WSN	Conventional Spray	Coating, Green Primer/5	Metals	Chromium (Total)	E3-v1	2.26E-04	1.97E-04	5.18E-04	7.55E-05	ba/gal paint	1	72.14	57.72
Coating Operation	Green primer (25.35% chromate)	40200610	WT	H.V.P. Spray Guns	Coating, Green Primer/6	Metals	Chromium (Hex)	E3-v0	8.91E-03	8.91E-03	8.91E-03	8.91E-03	ba/gal paint	2	48.31	37.06
Coating Operation	Green primer (25.35% chromate)	40200610	WT	H.V.P. Spray Guns	Coating, Green Primer/6	Metals	Chromium (Total)	E3-v0	1.42E-01	1.42E-01	1.42E-01	1.42E-01	ba/gal powder	1	0.00	0.00
Coating Operation	Powder (100% chromum oxide)	40200101	None	Conventional Spray	Coating, Powder/7	Metals	Nickel	C3-v	1.60E-03	1.60E-03	1.60E-03	1.60E-03	ba/gal powder	1	0.00	0.00
Coating Operation	Powder (4% Ni, 95% Al)	40202489	AF	Conventional Spray	Coating, Powder/5	Metals	Chromium (Hex)	A3-v	3.00E-04	3.00E-04	3.00E-04	3.00E-04	ba/gal powder	1	0.00	0.00
Coating Operation	Powder (4% Ni, 44% Cr)	40202489	AF	Conventional Spray	Coating, Powder/3	Metals	Chromium (Total)	A3-v	4.02E-04	4.02E-04	4.02E-04	4.02E-04	ba/gal powder	1	0.00	0.00
Coating Operation	Powder (70% Ni, 4% Cr)	40202489	AF	Conventional Spray	Coating, Powder/3	Metals	Chromium (Hex)	A3-v	1.81E-04	1.81E-04	1.81E-04	1.81E-04	ba/gal powder	1	0.00	0.00
Coating Operation	Powder (75% CrO2, 20% NiCr, 5% Cr)	40200101	None	Conventional Spray	Coating, Powder/3	Metals	Chromium (Hex)	A3-v	1.63E-02	1.63E-02	1.63E-02	1.63E-02	ba/gal powder	1	0.00	0.00
Coating Operation	Powder (80% Ni, 20% Cr)	40200101	None	Conventional Spray	Coating, Powder/6	Metals	Chromium (Hex)	C3-v	3.75E-01	3.75E-01	3.75E-01	3.75E-01	ba/gal powder	1	0.00	0.00
Coating Operation	Powder (80% Ni, 20% Cr)	40200101	None	Conventional Spray	Coating, Powder/6	Metals	Chromium (Total)	C3-v	1.86E-03	1.86E-03	1.86E-03	1.86E-03	ba/gal powder	1	0.00	0.00
Coating Operation	Powder (17% Al2O3, 13% TiO2)	40200101	None	Conventional Spray	Coating, Powder/2	Metals	Chromium (Total)	C3-v	3.48E-04	3.48E-04	3.48E-04	3.48E-04	ba/gal powder	1	0.00	0.00
Coating Operation	Yellow PE (30% lead chromate)	40200110	BF	Conventional Spray	Coating, Yellow PE/1	Metals	Chromium (Hex)	E3-v0	5.12E-03	4.86E-03	7.04E-03	3.48E-03	ba/gal paint	1	35.23	39.86
Coating Operation	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Chromium (Total)	E3-v0	5.98E-03	6.75E-03	3.58E-03	3.58E-03	ba/gal paint	1	35.23	39.86
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v1	1.44E-11	1.18E-11	1.32E-11	9.05E-12	ba/ton coke	1	18.56	21.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v1	1.44E-10	1.01E-10	2.99E-10	3.17E-11	ba/ton coke	1	96.53	109.23
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v1	9.58E-12	9.20E-12	1.35E-11	6.04E-12	ba/ton coke	1	39.05	44.19
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v1	8.45E-11	1.02E-11	1.02E-11	6.31E-11	ba/ton coke	1	23.10	24.14
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v1	9.93E-11	9.24E-12	1.24E-11	4.83E-12	ba/ton coke	1	55.10	62.35
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v1	1.38E-11	1.27E-11	1.04E-11	8.30E-12	ba/ton coke	1	44.48	50.33
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v0	1.29E-11	1.45E-11	1.50E-11	9.20E-12	ba/ton coke	1	24.83	28.10
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v0	6.38E-11	6.71E-11	8.95E-11	3.39E-11	ba/ton coke	1	41.02	46.89
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v1	1.39E-10	1.09E-10	2.18E-10	7.86E-11	ba/ton coke	1	51.68	58.41
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v1	1.77E-09	1.70E-09	2.75E-09	1.02E-09	ba/ton coke	1	36.40	42.27
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Metals	Dioxin/Furan	A3-v0	1.33E-11	1.45E-11	1.65E-11	7.60E-11	ba/ton coke	1	56.40	

TABLE 24. EMISSION FACTORS.

System Type	Manufacture Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	AR6 Rating	Mesh	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Incw, %	Out Ratio
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, SF Other	A3-v0	1.20E-11	9.47E-11	1.79E-10	8.70E-11	bar/ton coke	1	42.57	48.17	0.74
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 123478	A3-v0	2.44E-11	2.47E-11	2.71E-11	1.21E-11	bar/ton coke	1	12.27	13.89	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 123478	A3-v0	2.21E-11	2.19E-11	1.31E-11	1.31E-11	bar/ton coke	1	14.00	46.42	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.99E-12	9.94E-12	1.06E-12	6.94E-12	bar/ton coke	1	29.03	32.85	0.67
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	2.01E-11	2.04E-11	2.04E-11	1.96E-11	bar/ton coke	1	2.85	2.88	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.52E-10	1.31E-10	2.38E-10	9.04E-11	bar/ton coke	1	49.18	55.66	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.50E-10	1.42E-10	1.78E-10	1.22E-10	bar/ton coke	1	15.51	17.85	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	5.68E-11	2.99E-11	2.99E-11	1.92E-11	bar/ton coke	1	17.06	19.33	0.72
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	5.18E-11	1.36E-11	2.86E-11	1.61E-11	bar/ton coke	1	0.00	0.00	0.50
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.48E-10	3.60E-05	4.79E-05	4.1E-05	bar/ton coke	1	92.90	104.78	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	4.61E-05	6.44E-05	4.92E-06	4.1E-05	bar/ton coke	1	4.04	4.57	0.34
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.95E-05	1.95E-05	2.48E-05	1.39E-05	bar/ton coke	1	5.42	6.13	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	9.39E-06	1.72E-06	2.43E-06	1.63E-06	bar/ton coke	1	27.51	31.13	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	6.31E-07	6.30E-07	9.84E-06	8.94E-06	bar/ton coke	1	22.77	25.76	0.42
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	2.05E-05	2.04E-05	2.09E-05	2.01E-05	bar/ton coke	1	5.34	6.04	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	9.32E-06	9.27E-06	9.84E-06	8.94E-06	bar/ton coke	1	13.63	15.42	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	6.20E-05	4.92E-05	9.27E-05	4.1E-05	bar/ton coke	1	1.82	2.06	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	4.56E-05	4.41E-05	9.27E-05	4.1E-05	bar/ton coke	1	5.34	5.04	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.63E-05	1.63E-05	1.76E-05	1.08E-05	bar/ton coke	1	43.08	48.75	0.50
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	9.08E-05	4.92E-05	1.76E-04	1.08E-05	bar/ton coke	1	65.87	74.54	0.88
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	4.65E-04	4.64E-04	4.92E-04	4.41E-04	bar/ton coke	1	81.90	82.67	0.65
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.63E-05	1.63E-05	1.76E-05	1.08E-05	bar/ton coke	1	5.42	6.13	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	6.90E-05	6.83E-05	7.82E-05	4.41E-06	bar/ton coke	1	5.42	6.13	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.17E-04	1.04E-04	1.33E-04	6.94E-05	bar/ton coke	1	5.31	6.01	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.46E-04	1.38E-04	1.64E-04	1.37E-04	bar/ton coke	1	35.15	39.78	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.93E-04	1.88E-04	2.81E-04	9.87E-04	bar/ton coke	1	10.68	12.08	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.92E-04	9.41E-05	1.02E-04	6.67E-04	bar/ton coke	1	50.39	57.00	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	8.71E-09	8.25E-09	8.25E-09	7.67E-09	bar/ton coke	1	9.02	10.20	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	8.95E-09	8.22E-09	8.25E-09	7.67E-09	bar/ton coke	1	15.15	17.15	0.38
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	8.95E-09	8.22E-09	8.25E-09	7.67E-09	bar/ton coke	1	4.04	4.57	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	8.95E-09	8.22E-09	8.25E-09	7.67E-09	bar/ton coke	1	4.04	4.57	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.28E-08	1.18E-08	1.84E-08	8.25E-09	bar/ton coke	1	4.04	4.57	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	8.95E-08	8.22E-08	8.25E-08	7.67E-09	bar/ton coke	1	40.02	45.28	0.79
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	3.98E-08	3.90E-08	4.90E-08	3.13E-08	bar/ton coke	1	4.04	4.57	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	5.94E-08	5.21E-08	6.61E-08	5.10E-08	bar/ton coke	1	17.64	19.96	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	8.95E-08	8.22E-08	8.25E-08	7.67E-09	bar/ton coke	1	14.90	16.86	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	2.41E-06	2.48E-06	3.14E-06	1.64E-06	bar/ton coke	1	4.04	4.57	0.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.84E-07	1.91E-07	2.15E-07	1.69E-07	bar/ton coke	1	31.02	35.10	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	2.87E-08	2.61E-08	3.23E-08	2.15E-08	bar/ton coke	1	12.67	14.34	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	1.02E-03	1.16E-03	1.22E-03	6.77E-04	bar/ton coke	1	20.27	22.94	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	3.24E-04	3.41E-04	3.60E-04	3.08E-04	bar/ton coke	1	7.79	8.82	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	3.24E-04	4.08E-04	4.50E-04	1.15E-04	bar/ton coke	1	56.20	63.60	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	5.34E-05	4.48E-05	7.17E-05	4.39E-05	bar/ton coke	1	7.79	8.82	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	3.09E-05	3.44E-05	3.78E-05	2.04E-05	bar/ton coke	1	29.89	33.82	1.00
Coke Calcining	Natural gas	30601401	SD/FF	None	Coke Calcining/1	Dioxin/Furan	Furan, BF 204678	A3-v0	4.89E-05	4.34E-05	4.79E-05	4.34E-05	bar/ton coke	1	5.72	6.47	0.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	HCl	HCl	C3-v1	9.89E-04	6.94E-04	1.74E-03	4.70E-04	bar/ton	1	70.23	79.47	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Arsenic	C3-v1	9.01E-07	9.59E-07	1.09E-06	6.58E-07	bar/ton	1	24.38	27.58	0.40
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Beryllium	C3-v1	1.29E-05	1.18E-05	1.94E-05	6.58E-07	bar/ton	1	24.38	27.58	0.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Chromium	C3-v0	7.11E-06	7.18E-06	7.40E-06	7.53E-06	bar/ton	1	46.41	52.62	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Chromium (Hex)	C3-v1	1.04E-05	1.08E-05	1.12E-05	9.06E-06	bar/ton	1	4.65	5.38	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Chromium (Total)	C3-v0	2.54E-05	2.24E-05	3.41E-05	1.99E-05	bar/ton	1	11.05	12.51	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Copper	C3-v0	3.75E-04	3.98E-04	4.98E-04	2.50E-04	bar/ton	1	29.89	33.82	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Lead	C3-v0	9.14E-06	7.53E-06	1.40E-05	5.92E-06	bar/ton	1	36.01	40.75	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Manganese	C3-v0	6.77E-07	7.53E-07	8.53E-07	3.95E-07	bar/ton	1	48.51	52.63	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Mercury	C3-v0	7.11E-06	7.53E-06	8.53E-06	5.98E-07	bar/ton	1	38.12	40.38	0.20
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Nickel	C3-v1	9.01E-07	9.59E-07	1.09E-06	6.58E-07	bar/ton	1	24.38	27.58	0.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Selenium	C3-v1	4.37E-04	1.38E-04	1.06E-03	1.10E-04	bar/ton	1	174.10	140.43	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	Metals	Zinc	A3-v2	1.76E-07	9.98E-09	5.11E-07	6.52E-09	bar/ton	1	165.58	187.34	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	PAH	Acenaphthene	A3-v2	4.33E-08	1.08E-08	1.15E-07	5.99E-09	bar/ton	1	138.59	156.81	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	PAH	Acenaphthylene	A3-v0	1.64E-07	4.24E-08	4.31E-07	1.94E-08	bar/ton	1	146.16	159.35	1.00
Drum Burning Furnace	None																

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	AIC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD %	Uncert. Ratio	Def
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	PAH	Fluoranthene	A3-v0	3.60E-08	4.08E-08	4.57E-08	2.15E-08	backdrum	1	35.46	40.12	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	PAH	Fluorene	A3-v2	3.92E-07	5.74E-08	5.82E-08	2.77E-08	backdrum	1	154.47	174.80	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	PAH	Indene(1,2,3-c)pyrene	A3-v0	3.76E-09	2.77E-09	5.82E-09	2.89E-09	backdrum	1	47.48	53.72	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	PAH	Naphthalene	A3-v1	1.06E-06	5.77E-07	2.30E-06	3.14E-07	backdrum	1	101.40	114.75	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	PAH	Phenanthrene	A3-v0	3.00E-07	1.89E-07	3.44E-07	1.78E-07	backdrum	1	67.44	74.32	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	VOC	Pyrene	A3-v0	4.99E-08	3.99E-08	5.72E-08	3.46E-08	backdrum	1	26.89	30.43	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	VOC	Benzene	C3-v0	2.22E-05	2.35E-05	3.52E-05	1.95E-05	backdrum	1	10.31	11.67	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	VOC	Formaldehyde	C3-v0	6.96E-05	7.20E-05	7.72E-05	5.96E-05	backdrum	1	12.95	14.65	1.00
Drum Burning Furnace	None	30902501	AB	None	Drum Burning Furnace/1	VOC	Vinyl Chloride	C3-v0	1.87E-05	1.98E-05	2.05E-05	1.64E-05	backdrum	1	10.31	11.67	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/4D 2378	A3-v0	4.46E-10	4.33E-10	4.92E-10	4.12E-10	backdrum	1	9.35	10.58	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/4D Total	A3-v1	2.16E-07	1.63E-07	4.85E-07	5.89E-08	backdrum	1	108.01	122.23	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/5D 12378	A3-v1	1.10E-09	1.11E-09	1.26E-09	9.39E-10	backdrum	1	14.62	16.54	0.28
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/5D Total	A3-v1	5.85E-08	2.58E-08	1.26E-07	2.39E-08	backdrum	1	99.75	112.88	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/6D 123478	A3-v1	1.22E-09	1.02E-09	1.76E-09	8.89E-10	backdrum	1	38.42	43.48	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/6D 123478	A3-v1	1.27E-09	1.16E-09	1.76E-09	8.89E-10	backdrum	1	35.01	39.82	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/6D 123789	A3-v1	1.15E-09	9.21E-10	1.76E-09	7.77E-10	backdrum	1	45.98	52.03	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/6D Total	A3-v1	2.54E-08	2.05E-08	4.07E-08	1.50E-08	backdrum	1	53.27	60.28	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/7D 1234678	A3-v1	8.41E-08	8.24E-08	1.06E-08	6.45E-09	backdrum	1	24.46	27.68	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/7D Total	A3-v0	5.81E-08	1.79E-08	2.28E-08	1.35E-08	backdrum	1	25.73	29.11	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Diary/8E Total	A3-v0	3.20E-08	1.78E-08	6.30E-09	4.40E-09	backdrum	1	24.30	27.50	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/4E Total	A3-v0	1.09E-07	1.44E-07	6.78E-07	1.05E-07	backdrum	1	103.45	117.07	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/5E 2378	A3-v0	3.09E-07	2.81E-07	4.51E-09	1.94E-09	backdrum	1	42.20	47.78	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/5E Total	A3-v1	4.48E-08	3.68E-08	7.27E-08	2.00E-08	backdrum	1	54.01	61.12	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/6E 123478	A3-v1	1.58E-08	1.47E-08	2.18E-08	9.83E-09	backdrum	1	94.32	106.73	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/6E 123789	A3-v1	1.58E-08	1.47E-08	1.98E-08	1.22E-08	backdrum	1	40.57	45.81	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/6E 234678	A3-v0	6.51E-10	3.54E-10	1.28E-09	3.22E-10	backdrum	1	83.32	94.28	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/6E Total	A3-v0	2.85E-08	2.87E-08	4.12E-08	1.53E-08	backdrum	1	7.97	9.02	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/7E 1234678	A3-v0	7.32E-09	6.62E-09	8.24E-09	6.11E-09	backdrum	1	14.95	16.82	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/7E 1234789	A3-v1	7.43E-10	5.45E-10	1.41E-09	2.78E-10	backdrum	1	79.33	89.77	0.63
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/7E Total	A3-v1	9.79E-09	1.12E-08	1.21E-08	9.11E-09	backdrum	1	32.92	37.25	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	Furan/8E	A3-v1	5.24E-08	3.52E-08	9.21E-09	3.00E-09	backdrum	1	65.72	74.37	0.81
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Diary/Furan	HCG	A3-v1	7.21E-02	1.39E-02	1.39E-02	5.03E-02	backdrum	1	49.52	55.69	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Antic	C3-v1	1.57E-05	2.23E-06	4.29E-05	2.03E-06	backdrum	1	149.64	169.33	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Beryllium	C3-v0	2.10E-06	2.23E-06	2.23E-06	2.05E-06	backdrum	1	4.73	5.35	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Cadmium	C3-v1	8.87E-05	2.21E-05	2.23E-04	2.03E-05	backdrum	1	131.64	148.97	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Chromium (Hex)	C3-v0	4.28E-05	4.18E-05	4.94E-05	3.72E-05	backdrum	1	14.39	16.28	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Chromium (Total)	C3-v0	2.88E-08	2.97E-08	4.18E-08	1.49E-08	backdrum	1	46.87	53.04	0.52
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Copper	C3-v0	6.15E-05	5.15E-05	8.57E-05	4.72E-05	backdrum	1	34.28	38.78	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Lead	C3-v0	6.54E-05	6.71E-05	6.77E-05	6.15E-05	backdrum	1	5.20	5.88	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Manganese	C3-v1	2.86E-04	6.71E-05	7.29E-04	6.15E-05	backdrum	1	134.26	151.93	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Mercury	C3-v1	1.92E-04	1.88E-04	3.07E-04	8.00E-05	backdrum	1	59.11	68.89	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Nickel	C3-v0	4.50E-05	4.48E-05	6.00E-05	4.41E-05	backdrum	1	2.15	2.44	0.34
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Selenium	C3-v0	3.96E-04	2.12E-04	5.98E-04	2.00E-04	backdrum	1	67.27	78.12	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	Metals	Zinc	A3-v1	1.20E-05	1.08E-05	1.54E-05	9.74E-06	backdrum	1	25.11	28.42	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Acenaphthene	A3-v1	9.47E-05	6.49E-05	2.04E-04	9.74E-06	backdrum	1	103.12	116.69	0.95
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Anthracene	A3-v1	1.20E-05	1.08E-05	1.54E-05	9.74E-06	backdrum	1	25.11	28.42	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Benzo(a)anthracene	A3-v1	1.20E-05	1.08E-05	1.54E-05	9.74E-06	backdrum	1	25.11	28.42	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Benzo(b)fluoranthene	A3-v1	1.20E-05	1.08E-05	1.54E-05	9.74E-06	backdrum	1	25.11	28.42	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Benzo(g,h,i)perylene	A3-v1	1.20E-05	1.08E-05	1.54E-05	9.74E-06	backdrum	1	25.11	28.42	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Benzo(k)fluoranthene	A3-v1	1.20E-05	1.08E-05	1.54E-05	9.74E-06	backdrum	1	25.11	28.42	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Chrysene	A3-v1	1.20E-05	1.08E-05	1.54E-05	9.74E-06	backdrum	1	25.11	28.42	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Dibenz(a,h)anthracene	A3-v0	4.78E-05	4.88E-05	6.07E-05	3.80E-05	backdrum	1	24.34	27.54	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Fluoranthene	A3-v0	1.20E-05	1.08E-05	1.54E-05	9.74E-06	backdrum	1	25.11	28.42	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Indene(1,2,3-c)pyrene	A3-v1	1.20E-05	1.08E-05	1.54E-05	9.74E-06	backdrum	1	25.11	28.42	0.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Naphthalene	A3-v1	7.17E-03	7.82E-03	9.53E-03	5.73E-03	backdrum	1	17.38	19.47	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	PAH	Phenanthrene	A3-v1	1.13E-04	1.39E-04	1.53E-04	4.73E-05	backdrum	1	50.80	57.49	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	VOC	Pyrene	A3-v0	4.93E-05	5.13E-05	6.36E-05	3.29E-05	backdrum	1	31.37	35.50	0.01
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	VOC	Benzene	C3-v0	7.70E-04	7.49E-04	9.98E-04	5.62E-04	backdrum	1	28.47	32.22	0.76
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	VOC	Formaldehyde	A3-v0	2.94E-02	2.21E-02	2.80E-02	2.03E-02	backdrum	1	17.17	19.42	1.00
Fluidized Bed Combustion	Agricultural waste	10100903	AU/CF	None	FBC Biomass/2	VOC	Vinyl Chloride	A3-v0	4.43E-04	4.73E-04	6.84E-04	4.73E-04	backdrum	1	22.35	25.29	0.00
Fluidized Bed Combustion	Coal																

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncertainty, %	Dist Ratio
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Dioxin 8D 123789	B1-v2	2.92E-09	6.65E-10	2.51E-08	1.31E-10	barbon	5	22.54	15.46	0.01
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Dioxin 8D Total	B1-v2	3.44E-09	7.40E-10	2.51E-08	1.68E-10	barbon	5	16.59	37.46	0.16
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Dioxin 7D 1234678	B1-v1	2.21E-09	1.09E-09	9.87E-09	2.10E-10	barbon	5	124.56	55.25	0.45
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Dioxin 7D Total	B1-v2	4.70E-09	2.05E-09	2.45E-08	1.06E-10	barbon	5	142.00	71.91	0.40
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Dioxin 8D	B1-v2	1.36E-08	1.23E-09	7.45E-08	2.68E-10	barbon	5	156.83	79.36	0.41
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Dioxin 4F 2378	B1-v1	1.24E-09	6.63E-10	5.83E-09	1.15E-10	barbon	5	174.34	71.53	0.04
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Dioxin 4F Total	B1-v1	2.03E-09	4.31E-10	8.81E-09	1.24E-10	barbon	5	108.90	54.10	0.45
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 5F 2378	B1-v1	1.31E-09	8.11E-10	1.11E-09	1.11E-10	barbon	5	178.54	94.34	0.09
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 5F Total	B1-v2	3.08E-09	6.52E-10	1.41E-08	1.67E-10	barbon	5	166.21	10.90	0.60
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 6F 123478	B1-v2	1.98E-09	5.63E-10	1.09E-08	1.39E-10	barbon	5	171.12	86.60	0.13
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 6F 123478	B1-v2	1.98E-09	5.63E-10	1.09E-08	1.39E-10	barbon	5	162.67	82.32	0.11
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 6F 234678	B1-v2	1.85E-09	5.65E-10	1.09E-08	1.39E-10	barbon	5	174.85	89.48	0.11
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 6F Total	B1-v2	2.28E-09	6.11E-10	2.91E-08	1.36E-10	barbon	5	146.79	74.29	0.28
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 7F 1234878	B1-v2	5.06E-09	9.41E-10	2.83E-08	3.36E-10	barbon	5	163.90	42.69	0.67
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 7F 1234878	B1-v2	3.28E-09	6.39E-10	2.39E-08	3.36E-10	barbon	5	152.72	77.28	0.53
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 7F Total	B1-v2	9.04E-09	1.07E-09	5.08E-08	5.39E-10	barbon	5	167.80	64.82	0.68
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Dioxin/Furan	Furan 8F	B1-v3	1.41E-08	8.84E-10	1.15E-07	2.47E-10	barbon	5	215.22	106.91	0.18
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Halogens	HCl	C1-v1	2.29E-02	3.33E-02	5.15E-02	9.25E-03	barbon	5	52.86	26.80	1.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Halogens	HF	C3-v0	6.22E-03	6.15E-03	8.15E-03	3.43E-03	barbon	2	31.61	25.30	0.63
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Antimony	C3-v0	1.15E-05	1.15E-05	1.81E-05	1.13E-05	barbon	5	2.27	2.57	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Arsenic	C3-v0	3.40E-05	8.25E-06	1.78E-05	1.13E-05	barbon	5	130.21	65.89	0.43
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Barium	D1-v3	4.98E-04	4.85E-04	5.26E-04	4.83E-04	barbon	5	4.86	5.50	1.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Beryllium	D1-v3	3.43E-08	2.14E-08	1.18E-05	9.67E-07	barbon	1	123.36	62.44	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Cadmium	D1-v1	1.19E-05	1.15E-05	1.18E-05	5.77E-07	barbon	5	53.59	27.12	0.35
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Chromium (Hex)	D1-v2	1.65E-05	2.88E-05	4.52E-05	4.58E-06	barbon	5	82.92	41.86	0.47
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Chromium (Total)	D1-v2	4.97E-05	8.66E-05	2.88E-04	6.83E-06	barbon	5	153.73	77.80	0.99
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Copper	D1-v2	1.32E-04	5.07E-05	3.98E-04	8.10E-06	barbon	5	98.37	49.78	0.99
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Lead	D1-v2	1.03E-05	1.15E-05	1.18E-05	1.33E-05	barbon	5	123.35	62.42	0.78
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Manganese	C3-v0	1.08E-03	5.93E-04	1.77E-06	1.15E-06	barbon	1	22.11	23.02	0.75
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Mercury	D1-v1	2.05E-03	3.30E-05	2.99E-02	1.17E-05	barbon	5	113.29	57.33	1.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Nickel	D1-v4	2.87E-04	3.04E-05	1.19E-03	2.51E-07	barbon	5	207.41	104.06	0.04
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Phosphorus	D1-v0	6.04E-04	6.06E-04	6.25E-04	5.95E-04	barbon	5	3.35	3.80	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Selenium	D1-v2	4.81E-05	1.98E-05	2.54E-04	1.33E-06	barbon	5	162.66	82.31	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Silver	C3-v0	1.55E-05	1.15E-05	1.18E-05	1.33E-05	barbon	1	2.27	2.57	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Tellurium	C3-v0	1.55E-05	1.15E-05	1.18E-05	1.33E-05	barbon	1	2.27	2.57	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	Metals	Zinc	D1-v1	1.08E-03	5.93E-04	1.77E-06	1.15E-06	barbon	5	113.29	57.33	1.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Acenaphthene	B1-v5	2.25E-06	1.53E-07	1.28E-05	2.24E-04	barbon	6	215.25	99.44	0.03
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Acenaphthylene	B1-v5	2.24E-06	1.37E-07	1.28E-05	2.94E-10	barbon	6	216.58	100.05	0.02
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Benzo(a)anthracene	B1-v5	2.21E-06	1.49E-07	1.28E-05	2.94E-10	barbon	6	218.17	99.87	0.03
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Benzo(b)fluoranthene	B1-v5	2.44E-06	1.90E-07	1.28E-05	2.94E-10	barbon	6	195.87	101.57	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Benzo(k)fluoranthene	B2-v3	4.34E-06	1.39E-07	1.28E-05	6.36E-08	barbon	3	145.56	65.10	0.01
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Benzo(g)hioxanthene	B1-v5	2.23E-06	1.48E-07	1.28E-05	2.94E-10	barbon	6	177.67	50.74	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Benzo(i)fluoranthene	B1-v5	2.23E-06	1.35E-07	1.28E-05	2.68E-08	barbon	3	146.90	95.98	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Chrysene	B1-v5	2.24E-06	1.55E-07	1.28E-05	2.94E-10	barbon	6	215.17	96.40	0.02
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Fluoranthene	B1-v5	2.24E-06	1.48E-07	1.28E-05	2.94E-10	barbon	6	216.23	96.89	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Fluorene	B1-v5	2.24E-06	1.37E-07	1.28E-05	3.67E-10	barbon	6	198.01	91.47	0.10
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Indeno(1,2,3-cd)pyrene	B1-v5	2.24E-06	1.48E-07	1.28E-05	2.94E-10	barbon	6	215.85	96.75	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Naphthalene	B1-v5	2.61E-04	9.71E-06	1.55E-03	1.76E-09	barbon	6	215.05	96.35	0.96
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Phenanthrene	B1-v5	3.18E-06	4.68E-07	1.28E-05	5.32E-10	barbon	6	150.96	69.74	0.33
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PAH	Pyrene	B1-v5	2.28E-06	1.70E-07	1.28E-05	2.94E-10	barbon	6	214.02	98.87	0.03
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PCB	PCB Dioxachlorinated biphenyls	C3-v0	1.93E-07	1.33E-07	2.53E-07	2.38E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PCB	PCB Dichlorinated biphenyls	C3-v0	2.45E-07	2.45E-07	2.45E-07	1.10E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PCB	PCB Heptachlorinated biphenyls	C3-v0	1.78E-07	1.78E-07	1.78E-07	1.68E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PCB	PCB Hexachlorinated biphenyls	C3-v0	1.78E-07	1.78E-07	1.78E-07	1.68E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PCB	PCB Monochlorinated biphenyls	C3-v0	2.45E-07	2.45E-07	2.45E-07	2.38E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PCB	PCB Nonchlorinated biphenyls	C3-v0	2.45E-07	2.45E-07	2.45E-07	2.38E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PCB	PCB Octachlorinated biphenyls	C3-v0	1.13E-07	1.13E-07	1.13E-07	1.10E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PCB	PCB Pentachlorinated biphenyls	C3-v0	1.13E-07	1.13E-07	1.13E-07	1.10E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	PCB	PCB Tetrachlorinated biphenyls	C3-v0	1.13E-07	1.13E-07	1.13E-07	1.10E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	VOC	Phenol	E3-v0	4.37E-04	4.28E-04	4.57E-04	4.27E-04	barbon	2	3.84	4.46	0.00
Fluidized Bed Combustion	Coal	10100217	LVA/C/FF	None	FBC, Coal/1	VOC	Acetaldehyde	C3-v0	6.35E								

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncertainty Inty., %	Def Ratio
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Dioxin-SD 12378	B1-v2	6.05E-10	3.41E-10	1.88E-09	6.88E-11	barbon	5	102.15	55.53	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Dioxin-5D Total	B1-v2	3.55E-09	4.22E-10	3.12E-08	1.90E-10	barbon	5	234.95	118.90	0.01
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Dioxin-6D 123478	B1-v2	2.92E-09	5.79E-10	2.51E-08	2.90E-10	barbon	5	91.17	49.56	0.05
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Dioxin-6D 123678	B1-v1	6.43E-10	5.79E-10	2.21E-08	1.31E-10	barbon	5	228.54	115.66	0.01
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Dioxin-6D 123789	B1-v2	2.92E-09	6.65E-10	2.51E-08	1.08E-10	barbon	5	124.56	65.25	0.16
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Dioxin-7D 1234678	B1-v1	3.44E-09	7.40E-10	9.87E-08	2.10E-10	barbon	5	124.56	65.25	0.16
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Dioxin-7D 1234678	B1-v2	4.70E-09	2.05E-09	2.45E-08	2.10E-10	barbon	5	142.09	71.91	0.40
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Dioxin-8D	B1-v2	1.36E-08	1.23E-09	7.45E-08	2.68E-10	barbon	5	155.83	79.36	0.41
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Dioxin-4E 2378	B1-v1	1.24E-09	4.63E-10	5.83E-09	1.15E-10	barbon	5	108.90	54.10	0.45
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-4E Total	B1-v1	2.03E-09	4.63E-10	5.83E-09	1.15E-10	barbon	5	108.90	54.10	0.45
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-5E 2378	B1-v1	1.31E-09	4.31E-10	8.81E-09	1.11E-10	barbon	5	176.54	89.34	0.99
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-5E 23478	B1-v1	1.38E-09	4.31E-10	8.81E-09	1.11E-10	barbon	5	168.21	84.10	0.15
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-6F 123478	B1-v2	3.10E-09	6.56E-10	1.41E-08	1.67E-10	barbon	5	140.19	70.80	0.60
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-6F 123678	B1-v2	1.89E-09	5.66E-10	1.09E-08	1.39E-10	barbon	5	171.12	86.60	0.13
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-6F 123789	B1-v2	1.89E-09	5.66E-10	1.09E-08	1.39E-10	barbon	5	162.87	82.32	0.17
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-6F 1234678	B1-v2	2.28E-09	6.11E-10	1.09E-08	1.39E-10	barbon	5	174.85	88.48	0.11
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-6F Total	B1-v2	5.06E-09	6.11E-10	1.09E-08	1.39E-10	barbon	5	146.79	74.29	0.28
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-7F 1234678	B1-v2	6.16E-09	9.41E-10	2.89E-08	2.38E-10	barbon	5	163.39	82.69	0.67
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-7F 1234789	B1-v2	3.28E-09	6.38E-10	2.38E-08	2.38E-10	barbon	5	152.72	77.26	0.53
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-7F Total	B1-v2	9.04E-09	1.07E-08	5.08E-08	2.38E-10	barbon	5	167.90	84.92	0.68
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Dioxin/Furan	Furan-7F	B1-v2	1.41E-08	8.84E-10	2.72E-10	1.15E-07	barbon	5	215.22	106.91	1.19
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Halogenes	HCl	C1-v1	2.29E-02	2.33E-02	5.19E-02	8.75E-03	barbon	2	31.61	25.90	0.63
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Antimony	C3-v0	6.22E-03	6.15E-03	9.61E-03	3.43E-03	barbon	2	1.27	2.57	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Arsenic	D1-v3	3.02E-05	1.15E-05	1.18E-05	1.73E-05	barbon	1	130.21	35.89	0.43
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Barium	D1-v3	4.09E-05	8.25E-06	1.47E-04	9.97E-07	barbon	1	4.86	5.50	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Beryllium	D1-v2	3.43E-06	2.14E-06	1.18E-05	5.77E-07	barbon	5	123.38	32.44	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Cadmium	D1-v1	1.19E-05	1.15E-05	2.19E-05	3.10E-06	barbon	5	53.59	27.12	0.35
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Chromium (Hex)	B1-v1	1.66E-05	9.28E-06	4.52E-05	4.58E-06	barbon	5	82.92	41.96	0.47
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Chromium (Total)	B1-v2	4.37E-05	1.86E-05	2.58E-04	3.63E-06	barbon	5	153.73	77.80	0.99
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Copper	D1-v2	1.33E-04	5.87E-05	3.98E-04	8.51E-06	barbon	5	98.37	49.78	0.99
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Lead	D1-v2	6.13E-05	3.30E-05	2.11E-04	1.25E-06	barbon	5	356.37	185.40	1.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Manganese	D1-v3	2.02E-04	8.33E-05	2.99E-02	1.17E-05	barbon	5	177.33	39.74	0.09
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Nickel	C1-v4	2.57E-04	3.04E-05	1.19E-03	2.51E-07	barbon	5	207.41	104.96	0.84
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Nickel	D1-v2	1.92E-04	5.90E-04	6.25E-04	6.85E-04	barbon	1	3.35	3.80	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Selenium	D1-v2	4.81E-05	1.94E-05	2.54E-04	1.13E-06	barbon	5	162.66	82.31	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Silver	C3-v0	1.15E-05	1.15E-05	1.18E-05	1.13E-06	barbon	1	2.27	2.57	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Thallium	C3-v0	1.53E-06	1.69E-06	7.72E-06	1.15E-06	barbon	1	22.11	25.02	0.75
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	Metals	Zinc	D1-v1	1.06E-03	5.93E-04	4.62E-03	2.24E-04	barbon	5	113.29	57.33	1.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Acenaphthene	B1-v5	2.25E-06	1.53E-07	1.28E-05	2.94E-10	barbon	6	215.25	39.44	0.03
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Acenaphthylene	B1-v5	2.24E-06	1.37E-07	1.28E-05	2.94E-10	barbon	6	216.58	100.05	0.02
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Anthracene	B1-v5	2.21E-06	1.48E-07	1.28E-05	2.94E-10	barbon	6	216.17	39.87	0.03
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Benzofluoranthene	B2-v3	2.44E-06	1.90E-07	1.28E-05	2.94E-10	barbon	6	219.85	101.57	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Benzofluoranthene	B2-v3	4.34E-06	1.90E-07	1.28E-05	2.94E-10	barbon	6	195.87	30.49	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Benzofluoranthene	B1-v5	9.80E-08	1.24E-07	1.72E-07	2.94E-10	barbon	3	145.56	35.10	0.01
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Benzofluoranthene	B1-v5	2.23E-06	1.48E-07	1.28E-05	2.94E-10	barbon	6	217.37	30.74	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Chrysene	B1-v5	2.25E-06	1.35E-07	1.28E-05	2.94E-10	barbon	3	146.90	35.88	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Fluoranthene	B1-v5	2.24E-06	1.48E-07	1.28E-05	2.94E-10	barbon	6	215.17	39.40	0.02
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Fluoranthene	B1-v5	2.24E-06	1.48E-07	1.28E-05	2.94E-10	barbon	6	216.23	39.89	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Fluoranthene	B1-v5	2.41E-06	2.81E-07	1.28E-05	2.94E-10	barbon	6	198.01	31.47	0.10
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Indeno(1,2,3-cd)pyrene	B1-v5	2.61E-04	9.37E-06	1.28E-05	2.94E-10	barbon	6	215.66	39.35	0.99
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Naphthalene	B1-v5	3.15E-06	4.68E-07	1.28E-05	5.92E-10	barbon	6	150.06	38.74	0.33
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Phenanthrene	B1-v5	2.28E-06	1.70E-07	1.28E-05	2.94E-10	barbon	6	214.02	38.87	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	Phenanthrene	B1-v5	2.45E-07	2.45E-07	2.53E-07	2.94E-10	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	PCB Dioxin/normed biphenyls	C3-v0	1.13E-07	1.13E-07	1.17E-07	1.17E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	PCB Dioxin/normed biphenyls	C3-v0	2.45E-07	2.45E-07	2.53E-07	2.94E-10	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	PCB Dioxin/normed biphenyls	C3-v0	1.78E-07	1.78E-07	1.78E-07	1.95E-07	barbon	1	3.02	3.45	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	PCB Dioxin/normed biphenyls	C3-v0	2.45E-07	2.45E-07	2.53E-07	2.94E-10	barbon	1	3.02	3.45	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	PCB Dioxin/normed biphenyls	C3-v0	4.68E-07	4.68E-07	2.53E-07	2.94E-10	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	PCB Dioxin/normed biphenyls	C3-v0	1.13E-07	1.13E-07	1.17E-07	1.17E-07	barbon	1	3.02	3.42	0.00
Fluidized Bed Combustion	Coal	10100217	LVAI/FFESP	None	FBC, Coal/1	PAH	PCB Dioxin/normed biphenyls	C3-v0	2.45E-07	2.45E-07	2.53E-07	2.94E-10	barbon	1	3.0		

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncertainty, %	Out Ratio
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	VOC	Formaldehyde	C1-v1	2.53E-02	5.95E-04	6.18E-03	2.49E-04	lb/ton	6	135.10	57.83	0.97
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Halogenes	HF	E3-v1	7.37E-02	6.51E-02	1.37E-01	2.06E-02	lb/ton	2	70.28	56.23	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Halogenes	HC	E3-v1	7.10E-04	5.99E-04	1.64E-03	1.05E-04	lb/ton	2	87.92	70.35	0.98
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Antimony	C3-v0	4.62E-05	4.16E-05	9.39E-05	6.39E-06	lb/ton	2	85.03	78.04	0.93
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Barium	C3-v0	2.14E-06	1.85E-06	4.07E-06	1.29E-06	lb/ton	2	51.83	41.47	0.93
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Cadmium	C3-v0	1.69E-05	1.65E-05	2.70E-05	6.13E-06	lb/ton	2	50.92	40.74	0.64
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Chromium (Hex)	A3-v1	9.31E-06	8.98E-06	1.32E-05	6.69E-06	lb/ton	2	28.24	23.40	0.60
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Chromium (Total)	A3-v1	1.01E-05	9.17E-06	1.67E-05	7.22E-06	lb/ton	2	39.00	31.20	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Copper	C3-v2	7.95E-05	7.39E-05	1.16E-04	3.08E-05	lb/ton	2	60.58	48.47	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Lead	C3-v2	1.57E-04	8.46E-05	1.12E-04	1.87E-04	lb/ton	2	118.47	94.79	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Manganese	C3-v3	1.32E-04	8.94E-05	2.90E-04	3.85E-05	lb/ton	2	80.66	64.54	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Mercury	C3-v3	1.25E-03	9.24E-04	3.51E-03	7.90E-06	lb/ton	2	117.50	94.02	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Nickel	C3-v1	1.24E-04	1.3E-04	2.69E-04	2.05E-05	lb/ton	2	85.42	68.35	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Selenium	C3-v1	8.91E-05	7.49E-05	1.71E-04	3.02E-05	lb/ton	2	76.52	61.23	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Zinc	C3-v1	9.96E-03	1.05E-02	1.98E-02	1.02E-03	lb/ton	2	89.84	55.88	0.53
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Acenaphthene	B3-v0	3.97E-07	3.7E-07	7.4E-07	1.97E-07	lb/ton	2	31.20	24.97	0.23
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Acenaphthylene	B3-v0	2.34E-07	2.05E-07	3.92E-07	1.94E-07	lb/ton	2	33.39	26.72	0.28
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Anthracene	B3-v0	2.35E-07	2.05E-07	3.92E-07	1.94E-07	lb/ton	2	33.39	26.72	0.28
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Benzofluoranthene	B3-v0	2.03E-07	1.97E-07	2.4E-07	1.97E-07	lb/ton	2	6.22	4.98	0.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Benzofluoranthene	B3-v0	3.08E-07	2.18E-07	6.96E-07	1.94E-07	lb/ton	2	63.85	50.93	0.18
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Chrysene	B3-v0	2.09E-07	2.05E-07	2.9E-07	1.94E-07	lb/ton	2	7.17	5.74	0.18
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Dibenz(a,h)anthracene	B3-v0	5.75E-07	5.18E-07	1.2E-06	1.94E-07	lb/ton	2	63.17	50.55	0.40
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Fluoranthene	B3-v0	2.66E-07	2.05E-07	7.2E-07	1.94E-07	lb/ton	2	56.59	45.28	0.36
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Fluoranthene	B3-v0	1.13E-06	1.02E-06	2.4E-06	1.94E-07	lb/ton	2	62.66	50.14	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Indeno(1,2,3-cd)pyrene	B3-v1	2.04E-07	1.98E-07	2.4E-06	1.94E-07	lb/ton	2	74.72	59.79	0.94
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Fluorene	B3-v1	4.69E-05	2.19E-05	1.25E-04	1.98E-05	lb/ton	2	102.67	82.15	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Naphthalene	B3-v2	5.35E-06	4.09E-06	3.31E-07	1.94E-07	lb/ton	2	130.36	104.31	0.97
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Phenanthrene	B3-v2	3.30E-06	3.07E-06	4.65E-06	1.97E-07	lb/ton	2	81.16	64.84	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Pyrene	E3-v1	1.20E-01	9.85E-02	2.90E-01	1.97E-02	lb/ton	2	24.88	28.16	1.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	Metals	Particulate	E3-v0	3.68E-01	4.02E-01	6.62E-01	1.60E-05	lb/ton	1	0.00	0.00	0.00
Fluidized Bed Combustion	Coal	10100901	LVA/FE/ESP	None	FBC, Coal/1	VOC	Benzene	C3-v0	1.60E-05	5.9E-05	1.60E-05	1.60E-05	lb/ton	1	35.59	40.27	0.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Down 4D 2378	A3-v0	2.98E-11	3.18E-11	3.74E-11	1.75E-11	lb/ton	1	34.79	39.37	0.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Down 5D 12378	A3-v0	3.28E-11	3.22E-11	4.45E-11	2.17E-11	lb/ton	1	11.17	12.84	0.28
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Down 6D 12378	A3-v0	3.58E-11	4.49E-11	4.78E-11	3.82E-11	lb/ton	1	43.16	48.84	0.59
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Down 6D 12378	A3-v0	6.98E-11	5.10E-11	9.53E-11	4.49E-11	lb/ton	1	17.34	19.63	0.40
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Down 7D 1234678	A3-v0	4.77E-11	4.42E-11	5.72E-11	4.19E-11	lb/ton	1	29.74	33.09	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Down 8D	A3-v0	8.90E-09	6.10E-09	9.19E-09	5.40E-10	lb/ton	1	37.79	42.76	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Down 4F 2378	A3-v1	1.29E-09	1.09E-09	1.88E-09	4.13E-09	lb/ton	1	40.85	46.23	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Furan 5F 12378	A3-v0	6.27E-11	5.10E-11	8.89E-11	4.81E-11	lb/ton	1	36.33	41.11	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Furan 5F 23478	A3-v1	7.99E-11	6.67E-11	1.19E-10	4.18E-11	lb/ton	1	26.05	29.47	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Furan 6F 12378	A3-v1	1.12E-10	9.21E-11	1.70E-10	7.39E-11	lb/ton	1	52.08	51.93	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Furan 6F 12378	A3-v1	2.77E-11	1.53E-11	5.79E-11	3.96E-11	lb/ton	1	45.61	51.61	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Furan 6F 234678	A3-v0	3.02E-10	1.51E-10	6.13E-10	1.43E-10	lb/ton	1	94.79	102.26	0.70
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Furan 7F 1234678	A3-v1	1.37E-09	6.74E-10	3.02E-09	4.13E-10	lb/ton	1	104.90	110.76	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Furan 7F 234678	A3-v1	8.97E-11	4.81E-11	2.01E-10	2.03E-11	lb/ton	1	108.25	122.49	0.92
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Furan 8F	A3-v1	1.61E-09	7.06E-10	3.74E-09	3.82E-10	lb/ton	1	115.15	130.30	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Acenaphthene	A3-v1	7.04E-07	5.15E-07	1.11E-06	4.86E-07	lb/ton	1	50.11	54.70	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Acenaphthylene	A3-v0	2.67E-05	2.27E-05	4.13E-05	1.62E-05	lb/ton	1	48.84	54.27	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Anthracene	A3-v0	5.69E-07	6.18E-07	7.31E-07	3.56E-07	lb/ton	1	33.86	34.32	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Benzofluoranthene	A3-v0	2.05E-08	2.09E-08	2.45E-08	1.62E-08	lb/ton	1	20.34	25.01	0.74
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Benzofluoranthene	A3-v0	1.84E-08	1.62E-08	2.45E-08	1.62E-08	lb/ton	1	3.80	4.29	0.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Benzofluoranthene	A3-v0	1.25E-07	1.18E-07	1.44E-07	1.44E-07	lb/ton	1	13.28	15.03	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Benzofluoranthene	A3-v0	1.20E-07	1.18E-07	1.44E-07	1.44E-07	lb/ton	1	15.29	17.23	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Benzofluoranthene	A3-v0	3.00E-08	2.53E-08	4.11E-08	3.02E-08	lb/ton	1	60.54	68.28	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Benzofluoranthene	A3-v0	3.00E-08	2.53E-08	4.11E-08	3.02E-08	lb/ton	1	32.58	36.54	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Chrysene	A3-v0	2.35E-07	2.42E-07	2.67E-07	1.97E-07	lb/ton	1	1.86	16.93	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Dibenz(a,h)anthracene	A3-v0	1.64E-08	1.82E-08	1.71E-08	1.69E-08	lb/ton	1	3.80	4.29	0.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Fluorene	A3-v0	6.73E-06	5.50E-06	9.53E-06	5.15E-06	lb/ton	1	59.21	49.97	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Fluorene	A3-v0	1.32E-06	1.13E-06	2.07E-06	7.76E-07	lb/ton	1	50.33	56.95	1.00
Fluidized Bed Combustion	Wood waste	10100903	AI/CE/ESP	None	FBC, Biomass/1	Down/Furan	Indeno(1,2,3-cd)pyrene	A3-v0	2.47E-08	2.04E-08	3.77E-08	1.59E-08	lb/ton	1	46.5		



TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	AIRB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncertainty, %	Det Ratio
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Dioxin/Furan	Furan SF 23478	C3-v2	1.52E-08	5.94E-10	4.48E-08	2.97E-10	lb/Mgal	1	168.14	190.26	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Dioxin/Furan	Furan SF 123478	C3-v2	1.92E-08	5.94E-10	4.48E-08	2.97E-10	lb/Mgal	1	169.85	192.20	0.01
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Dioxin/Furan	Furan SF 123478	C3-v2	6.12E-09	2.92E-10	1.79E-08	1.49E-10	lb/Mgal	1	166.91	188.97	0.02
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Dioxin/Furan	Furan SF 234678	C3-v2	4.82E-09	2.92E-10	1.79E-08	1.49E-10	lb/Mgal	1	34.70	39.26	0.05
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Dioxin/Furan	Furan SF 1234678	C3-v2	8.79E-09	8.91E-10	2.48E-08	5.95E-10	lb/Mgal	1	158.52	179.39	0.03
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Dioxin/Furan	Furan SF 1234789	C3-v1	1.95E-08	1.95E-09	2.69E-09	2.97E-10	lb/Mgal	1	109.22	123.59	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Arsenic	C3-v1	1.04E-08	4.75E-09	2.54E-08	1.19E-09	lb/Mgal	1	125.10	141.57	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Beryllium	C3-v1	3.34E-04	8.29E-04	8.62E-04	8.13E-04	lb/Mgal	1	3.01	3.41	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Cadmium	C3-v1	7.78E-05	7.64E-05	8.68E-05	7.04E-05	lb/Mgal	1	10.51	11.89	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Chromium (Hex)	C3-v2	8.21E-04	1.18E-03	1.23E-03	4.29E-05	lb/Mgal	1	82.13	92.94	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Chromium (Total)	A3-v0	2.54E-03	3.08E-04	3.13E-04	2.39E-04	lb/Mgal	1	14.20	16.07	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Copper	A3-v0	2.62E-03	2.68E-03	2.74E-03	2.22E-03	lb/Mgal	1	14.14	12.60	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Lead	D3-v0	2.96E-04	1.78E-04	4.58E-04	1.62E-04	lb/Mgal	1	64.84	73.48	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Manganese	D3-v0	1.89E-03	1.78E-03	2.22E-03	1.67E-03	lb/Mgal	1	73.61	83.90	0.62
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Mercury	D3-v0	1.72E-05	1.29E-05	2.83E-05	1.04E-05	lb/Mgal	1	15.12	17.11	0.36
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Nickel	D3-v0	3.46E-01	3.47E-01	4.09E-01	2.91E-01	lb/Mgal	1	56.41	53.84	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Selenium	D3-v0	4.63E-03	3.96E-03	6.59E-03	3.33E-03	lb/Mgal	1	18.57	21.01	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	Metals	Zinc	D3-v1	8.93E-03	8.35E-03	1.22E-02	6.72E-03	lb/Mgal	1	37.32	42.23	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Acenaphthene	C3-v2	1.75E-06	2.20E-06	2.99E-06	6.91E-08	lb/Mgal	1	33.43	37.82	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Acenaphthylene	C3-v1	8.02E-08	5.33E-08	1.37E-07	5.03E-08	lb/Mgal	1	86.27	89.29	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Anthracene	C3-v2	6.82E-06	6.81E-06	7.41E-06	5.65E-06	lb/Mgal	1	11.48	15.25	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Benzo[a]anthracene	C3-v2	3.84E-06	2.05E-07	1.12E-05	1.33E-07	lb/Mgal	1	165.96	187.35	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Benzo[b]fluoranthene	C3-v1	9.80E-08	6.33E-08	1.84E-07	2.40E-08	lb/Mgal	1	82.16	92.97	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Benzo[k]fluoranthene	C3-v1	5.54E-07	3.30E-07	7.32E-07	3.60E-07	lb/Mgal	1	38.74	42.36	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Benzo[e]pyrene	C3-v1	1.21E-06	5.06E-07	5.72E-06	2.55E-07	lb/Mgal	1	140.55	159.04	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Benzo[a]pyrene	C3-v0	3.35E-08	2.08E-08	8.81E-08	1.19E-08	lb/Mgal	1	140.55	159.04	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Chrysene	C3-v1	1.12E-05	2.80E-06	2.92E-05	1.54E-06	lb/Mgal	1	90.02	101.86	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Fluorene	C3-v2	1.76E-06	1.18E-07	5.09E-06	6.54E-08	lb/Mgal	1	139.73	158.78	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Fluoranthene	C3-v0	1.97E-06	2.80E-06	2.92E-05	1.54E-06	lb/Mgal	1	164.18	187.16	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Indeno(1,2,3-cd)pyrene	C3-v1	7.48E-05	3.25E-05	1.67E-04	2.52E-05	lb/Mgal	1	106.53	120.55	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Naphthalene	C3-v1	8.46E-04	1.04E-03	1.11E-03	4.88E-07	lb/Mgal	1	158.71	179.59	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Phenanthrene	C3-v1	2.49E-05	1.04E-03	1.11E-03	4.88E-07	lb/Mgal	1	106.53	120.55	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	Pyrene	C3-v1	1.32E-06	1.19E-06	2.14E-06	2.82E-07	lb/Mgal	1	47.07	53.26	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	2-Chloronaphthalene	C3-v3	1.17E-05	5.33E-06	3.50E-05	3.7E-08	lb/Mgal	1	57.94	65.56	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	PAH	2-Methylnaphthalene	C3-v1	3.00E-05	1.06E-05	8.20E-05	4.54E-08	lb/Mgal	1	172.55	185.25	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	Pentane	C3-v1	7.41E-08	3.57E-08	6.6E-07	2.07E-08	lb/Mgal	1	107.75	121.93	1.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	1,3-Butadiene	A3-v0	1.95E-02	1.96E-02	2.01E-02	1.89E-02	lb/Mgal	1	3.14	3.55	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	Acetaldehyde	A3-v0	5.43E-04	5.45E-04	6.05E-04	5.39E-04	lb/Mgal	1	0.98	1.11	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	Acrolein	A3-v0	9.89E-04	9.92E-04	1.05E-03	9.15E-04	lb/Mgal	1	0.95	1.07	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	Benzene	A3-v0	8.47E-03	8.49E-03	8.74E-03	8.19E-03	lb/Mgal	1	3.22	3.65	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	Chloroform	A3-v0	6.93E-03	8.85E-03	8.89E-03	8.35E-03	lb/Mgal	1	3.06	3.46	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	Formaldehyde	A3-v0	3.80E-03	3.91E-03	3.94E-03	3.77E-03	lb/Mgal	1	0.95	1.08	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	Propylene	A3-v1	1.52E-02	1.52E-02	1.56E-02	1.47E-02	lb/Mgal	1	3.01	3.41	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	Toluene	A3-v1	9.98E-03	1.00E-02	1.03E-02	9.67E-03	lb/Mgal	1	3.06	3.46	0.00
Heater	Pipeline oil	31000403	None	None	Heater, Oil	VOC	Xylene (Total)	A3-v0	1.03E-02	3.82E-02	1.03E-02	1.89E-02	lb/Mgal	1	3.21	3.63	0.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Aluminum	D3-v2	2.32E-03	2.04E-01	8.41E-00	8.09E-02	lb/ton production	1	162.18	181.52	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Antimony	D3-v0	3.88E-03	3.94E-03	3.99E-03	3.90E-03	lb/ton production	1	2.53	2.97	0.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Arsenic	D3-v1	5.38E-04	1.65E-04	1.29E-03	1.63E-04	lb/ton production	1	120.33	136.16	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Barium	D3-v1	2.41E-02	3.18E-02	3.26E-02	3.26E-02	lb/ton production	1	57.00	64.50	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Beryllium	D3-v0	1.96E-03	1.93E-03	2.02E-03	1.91E-03	lb/ton production	1	2.94	3.33	0.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Cadmium	D3-v1	2.28E-03	1.11E-03	5.43E-03	2.42E-04	lb/ton production	1	122.88	139.05	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Chromium (Hex)	C3-v0	6.86E-04	7.49E-04	7.72E-04	5.45E-04	lb/ton production	1	17.89	20.24	0.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Chromium (Total)	D3-v0	2.43E-02	1.71E-02	4.07E-02	1.51E-02	lb/ton production	1	58.87	66.39	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Copper	D3-v0	2.11E-01	1.92E-01	2.28E-01	1.57E-01	lb/ton production	1	31.38	35.53	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Iron	D3-v0	2.01E-01	2.17E-01	2.71E-01	1.17E-01	lb/ton production	1	13.82	15.84	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Manganese	D3-v0	9.86E-03	8.55E-03	8.64E-03	6.69E-03	lb/ton production	1	32.86	36.98	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Mercury	D3-v0	1.55E-04	1.71E-04	2.71E-04	1.51E-04	lb/ton production	1	68.87	77.70	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Nickel	D3-v1	2.15E-04	2.61E-04	3.80E-04	9.47E-05	lb/ton production	1	115.02	130.16	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Phosphorus	D3-v1	7.18E-02	2.72E-02	9.37E-02	4.84E-02	lb/ton production	1	31.62	35.79	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Selenium	D3-v0	1.31E-04	1.29E-04	1.35E-04	1.29E-04	lb/ton production	1	3.14	3.59	0.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Silver	D3-v0	8.31E-04	8.23E-04	8.54E-04	8.14E-04	lb/ton production	1	2.53	2.87	1.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Thallium	D3-v0	1.57E-02	1.55E-02	1.62E-02	1.53E-02	lb/ton production	1	3.44	4.04	0.00
Metal Furnace	Alloy stock	30300926	None	Electric Induction	Furnace, Alloy Stock/1	Metals	Zinc	D3-v0	1								

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD%, Uncertal	Dat	
Metal Furnace	Aluminum	30400103	FF	Reverberatory	Furnace, Aluminum3	Metals	Manganese	D3-v1	1.17E-04	1.31E-04	2.08E-04	1.33E-05	ba/ton production	1	83.54	94.53	1.00
Metal Furnace	Aluminum	30400103	FF	Reverberatory	Furnace, Aluminum3	Metals	Nickel	D3-v1	1.35E-04	1.31E-04	2.61E-04	1.33E-05	ba/ton production	1	91.82	103.90	1.00
Metal Furnace	Aluminum	30400103	FF	Reverberatory	Furnace, Aluminum3	VOC	Benzene	A3-v0	5.84E-02	6.55E-02	8.51E-02	2.67E-02	ba/ton production	1	50.56	57.21	1.00
Metal Furnace	Aluminum	30400103	FF	Reverberatory	Furnace, Aluminum3	VOC	Formaldehyde	C3-v1	8.89E-02	8.81E-02	1.05E-01	7.34E-02	ba/ton production	1	17.76	20.10	1.00
Metal Furnace	Aluminum	30400103	FF	Reverberatory	Furnace, Aluminum3	VOC	Hydrogen Sulfide	C3-v1	1.65E-01	1.67E-01	1.69E-01	1.63E-01	ba/ton production	1	1.81	2.04	1.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Arsenic	D3-v0	7.52E-06	7.20E-06	8.16E-06	7.20E-06	ba/ton production	1	7.37	8.34	0.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Beryllium	D3-v0	2.89E-05	2.88E-05	3.31E-05	2.78E-05	ba/ton production	1	9.40	10.64	0.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Cadmium	D3-v0	4.77E-05	5.76E-05	5.76E-05	4.77E-05	ba/ton production	1	36.04	40.78	0.81
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Chromium	D3-v0	2.21E-05	5.28E-05	5.28E-05	2.21E-05	ba/ton production	1	93.68	74.85	1.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Chromium (Hex)	D3-v0	5.07E-05	2.98E-05	1.54E-04	7.62E-06	ba/ton production	2	110.40	88.34	1.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Copper	D3-v1	1.22E-04	2.16E-04	5.76E-05	5.76E-05	ba/ton production	1	68.64	71.69	1.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Lead	D3-v1	1.22E-04	1.87E-04	3.74E-04	1.44E-04	ba/ton production	1	124.02	140.33	1.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Manganese	D3-v2	1.26E-02	3.74E-04	8.78E-06	3.12E-06	ba/ton production	1	189.82	182.17	1.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Mercury	D3-v0	4.84E-06	3.12E-06	7.68E-06	3.12E-06	ba/ton production	1	58.74	64.21	1.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Nickel	D3-v1	3.31E-04	1.58E-04	7.68E-04	6.72E-05	ba/ton production	1	115.04	130.18	1.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Selenium	D3-v1	1.16E-06	1.05E-06	1.05E-06	6.72E-06	ba/ton production	1	25.64	29.01	0.73
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	Metals	Zinc	D3-v1	5.14E-04	4.18E-04	6.90E-04	1.63E-04	ba/ton production	1	79.24	86.67	1.00
Metal Furnace	Aluminum	30400103	None	Reverberatory	Furnace, Aluminum4	VOC	Hydrogen Sulfide	C3-v0	2.92E-02	2.05E-02	2.50E-02	2.05E-02	ba/ton production	1	9.78	11.06	1.00
Metal Furnace	Aluminum	30400107	FF	Dross	Furnace, Aluminum1	Metals	Beryllium	C3-v0	8.06E-05	8.05E-05	8.06E-05	8.06E-05	ba/ton production	1	0.00	0.00	0.00
Metal Furnace	Aluminum	30400107	FF	Dross	Furnace, Aluminum1	Metals	Cadmium	C3-v0	4.37E-04	3.95E-04	8.06E-04	1.28E-04	ba/ton production	1	84.73	95.88	1.00
Metal Furnace	Aluminum	30400107	FF	Dross	Furnace, Aluminum1	Metals	Copper	C3-v0	1.15E-03	1.45E-03	2.88E-03	1.04E-03	ba/ton production	1	10.48	11.87	1.00
Metal Furnace	Aluminum	30400107	FF	Dross	Furnace, Aluminum1	Metals	Lead	C3-v0	4.88E-04	4.16E-04	5.28E-04	4.00E-04	ba/ton production	1	15.57	17.82	1.00
Metal Furnace	Aluminum	30400107	FF	Dross	Furnace, Aluminum1	Metals	Manganese	C3-v0	8.97E-04	8.97E-04	2.24E-04	1.44E-04	ba/ton production	1	21.57	24.41	1.00
Metal Furnace	Aluminum	30400107	FF	Dross	Furnace, Aluminum1	VOC	Nickel	C3-v0	5.1E-04	2.68E-04	3.52E-04	1.92E-04	ba/ton production	1	35.15	39.78	1.00
Metal Furnace	Aluminum	30400107	FF	Dross	Furnace, Aluminum1	VOC	Benzene	A3-v1	1.17E-02	4.32E-03	1.41E-01	4.32E-03	ba/ton production	1	109.14	123.50	0.75
Metal Furnace	Aluminum	30400107	FF	Dross	Furnace, Aluminum1	VOC	Formaldehyde	C3-v0	3.94E-01	1.33E-01	1.41E-01	1.27E-01	ba/ton production	1	5.06	5.72	1.00
Metal Furnace	Aluminum	30400107	FF	Dross	Furnace, Aluminum1	VOC	Hydrogen Sulfide	C3-v0	2.90E-01	2.85E-01	2.95E-01	2.78E-01	ba/ton production	1	3.50	3.96	1.00
Metal Furnace	Aluminum	30400109	None	Melting Pot	Furnace, Aluminum2	Metals	Beryllium	D3-v0	4.00E-07	4.00E-07	4.00E-07	4.00E-07	ba/ton production	1	0.00	0.00	0.00
Metal Furnace	Aluminum	30400109	None	Melting Pot	Furnace, Aluminum2	Metals	Cadmium	D3-v0	1.73E-06	2.00E-06	2.00E-06	2.00E-06	ba/ton production	1	26.65	30.15	1.00
Metal Furnace	Aluminum	30400109	None	Melting Pot	Furnace, Aluminum2	Metals	Copper	D3-v0	2.53E-06	2.40E-06	3.60E-06	1.60E-06	ba/ton production	1	39.74	44.96	1.00
Metal Furnace	Aluminum	30400109	None	Melting Pot	Furnace, Aluminum2	Metals	Lead	D3-v0	1.30E-06	1.20E-06	1.60E-06	1.20E-06	ba/ton production	1	17.32	19.60	1.00
Metal Furnace	Aluminum	30400109	None	Melting Pot	Furnace, Aluminum2	Metals	Manganese	D3-v2	8.99E-07	8.00E-07	1.20E-06	8.50E-08	ba/ton production	1	81.28	91.98	1.00
Metal Furnace	Aluminum	30400109	None	Melting Pot	Furnace, Aluminum2	Metals	Nickel	D3-v1	8.00E-07	8.00E-07	1.20E-06	4.00E-07	ba/ton production	1	50.00	56.58	1.00
Metal Furnace	Aluminum	30400109	None	Melting Pot	Furnace, Aluminum2	VOC	Benzene	A3-v0	8.00E-06	8.00E-06	8.00E-06	8.00E-06	ba/ton production	1	0.00	0.00	0.00
Metal Furnace	Aluminum	30400109	None	Melting Pot	Furnace, Aluminum2	VOC	Formaldehyde	C3-v0	2.54E-04	2.44E-04	3.52E-04	1.72E-04	ba/ton production	1	35.38	40.04	1.00
Metal Furnace	Aluminum	30400224	FF	Melting Pot	Furnace, Aluminum2	VOC	Hydrogen Sulfide	C3-v0	3.47E-04	5.80E-04	5.80E-04	5.80E-04	ba/ton production	1	4.22	4.78	1.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Arsenic	A3-v0	3.70E-05	3.70E-05	4.11E-05	3.29E-05	ba/ton production	1	15.71	21.78	1.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Beryllium	A3-v0	5.76E-05	5.76E-05	5.76E-05	5.76E-05	ba/ton production	1	0.00	0.00	0.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Cadmium	A3-v0	4.11E-05	4.11E-05	6.58E-05	1.65E-05	ba/ton production	1	84.85	117.80	1.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Chromium	A3-v0	2.29E-03	2.17E-03	2.53E-03	2.16E-03	ba/ton production	1	9.04	10.22	1.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Chromium (Hex)	A3-v0	3.29E-04	3.9E-04	4.94E-04	1.65E-04	ba/ton production	1	50.00	56.58	1.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Copper	A3-v1	2.13E-03	2.7E-03	3.27E-03	5.1E-04	ba/ton production	1	66.24	74.96	1.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Lead	A3-v1	1.04E-03	1.02E-03	1.32E-03	7.73E-04	ba/ton production	1	26.57	30.06	1.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Manganese	A3-v1	3.89E-04	6.3E-04	8.23E-04	2.33E-05	ba/ton production	1	99.12	112.17	1.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Mercury	A3-v0	5.76E-05	5.76E-05	6.58E-05	4.94E-05	ba/ton production	1	14.29	16.17	1.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Nickel	A3-v0	9.18E-04	9.21E-04	9.87E-04	8.23E-04	ba/ton production	1	9.10	10.29	0.30
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Selenium	A3-v0	1.81E-04	1.89E-04	1.89E-04	1.73E-04	ba/ton production	1	4.55	5.14	0.00
Metal Furnace	Brass and bronze ingot	30400224	FF	Electric Induction	Furnace, Brass/Bronze1	Metals	Zinc	A3-v1	1.14E-03	1.02E-03	2.03E-03	3.79E-04	ba/ton production	1	73.41	83.07	1.00
Plating Operating	Chromic acid	30901006	DM	Hard	Plating, Hard/1	Metals	Chromium (Hex)	C1-v0	1.94E-02	1.73E-02	3.65E-02	1.36E-02	mg/amp-hr	6	32.65	17.75	0.55
Plating Operating	Chromic acid	30901006	DM/PB	Hard	Plating, Hard/1	Metals	Chromium (Hex)	C1-v0	4.24E-02	4.6E-02	7.20E-02	1.80E-02	mg/amp-hr	6	37.80	20.55	0.62
Plating Operating	Chromic acid	30901006	DM/PB	Hard	Plating, Hard/1	Metals	Chromium (Hex)	C1-v0	1.94E-02	1.73E-02	3.65E-02	1.36E-02	mg/amp-hr	6	32.65	17.75	0.55
Plating Operating	Chromic acid	30901006	DM/PB	Hard	Plating, Hard/1	Metals	Chromium (Hex)	C1-v0	4.24E-02	4.6E-02	7.20E-02	1.80E-02	mg/amp-hr	6	37.80	20.55	0.62
Plating Operating	Chromic acid	30901006	DMWS/PB	Hard	Plating, Hard/1	Metals	Chromium (Hex)	C1-v0	1.94E-02	1.73E-02	3.65E-02	1.36E-02	mg/amp-hr	6	32.65	17.75	0.55
Plating Operating	Chromic acid	30901006	DMWS/PB	Hard	Plating, Hard/1	Metals	Chromium (Hex)	C1-v0	4.24E-02	4.6E-02	7.20E-02	1.80E-02	mg/amp-hr	6	37.80	20.55	0.62
Plating Operating	Chromic acid	30901006	WS	Hard	Plating, Hard/1	Metals	Chromium (Hex)	C1-v0	1.94E-02	1.73E-02	3.65E-02	1.36E-02	mg/amp-hr	6	32.65	17.75	0.55
Plating Operating	Chromic acid	30901006	WS	Hard	Plating, Hard/1	Metals	Chromium (Hex)	C1-v0	4.24E-02	4.6E-02	7.20E-02	1.80E-02	mg/amp-hr	6	37.80	20.55	0.62
Plating Operating	Chromic acid	30901006	DMWS/FF	Hard	Plating, Hard/2	Metals	Chromium (Hex)	C3-v0	3.98E-03	3.92E-03	5.93E-03	2.07E-03	mg/amp-hr	2	41.16	40.26	0.83
Plating Operating	Chromic acid	30901006	DMWS/FF	Hard	Plating, Hard/2	Metals	Chromium (Hex)	C3-v1	8.23E-04	5.5E-04	1.91E-03	3.44E-04	mg/amp-hr	2	75.31	60.36	0.63
Plating Operating	Chromic acid	30901006	DMWS/FF	Hard	Plating, Anodizing/2	Metals	Chromium (Hex)	C3-v0	4.15E-02	4.2E-02	4.2E-02	4.0E-02	mg/amp-hr	1	2.27	3.14	0.00
Plating Operating	Chromic acid	30901006	DMWS/FF	Hard	Plating, Anodizing/1	Metals	Chromium (Hex)	C3-v1	8.72E-03	4.1E-03	1.92E-03	3.92E-03	mg/amp-hr	1	18.00	20.37	1.00
Plating Operating	Chromic acid	30901006	WS	Anodizing	Plating, Anodizing/1	Metals	Chromium (Hex)	C3-v0	5.71E-02	5.11E-02	8.59E-02	3.15E-02	mg/amp-hr	1	47.98	50.69	1.00
Plating Operating	Chromic acid	30901006	WS	Anodizing	Plating, Anodizing/1	Metals	Chromium (Hex)	C3-v1	5.71E-02	5.11E							

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor	Tests	RSD, %	Uncertainty, %	Def. Ratio
Polystyrene Manufacturing	Styrene monomer	30101818	None	Devolatilizer	PM, Devolatilizer/	VOC	Toluene	C3-v	2.98E-07	2.98E-07	2.98E-07	2.98E-07	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Devolatilizer	PM, Devolatilizer/	VOC	Xylene (m,p)	C3-v	1.96E-07	1.96E-07	1.96E-07	1.96E-07	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Devolatilizer	PM, Devolatilizer/	VOC	Xylene (o)	C3-v	6.22E-08	6.22E-08	6.22E-08	6.22E-08	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Mix Tank	PM, Mix Tank/	VOC	Ethylbenzene	C3-v	4.35E-08	4.35E-08	4.35E-08	4.35E-08	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Mix Tank	PM, Mix Tank/	VOC	Benzene	C3-v	2.75E-09	2.75E-09	2.75E-09	2.75E-09	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Mix Tank	PM, Mix Tank/	VOC	Styrene	C3-v	2.41E-05	2.41E-05	2.41E-05	2.41E-05	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Mix Tank	PM, Mix Tank/	VOC	Toluene	C3-v	2.75E-09	2.75E-09	2.75E-09	2.75E-09	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Mix Tank	PM, Mix Tank/	VOC	Xylene (m,p)	C3-v	3.67E-09	3.67E-09	3.67E-09	3.67E-09	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Mix Tank	PM, Mix Tank/	VOC	Xylene (o)	C3-v	3.67E-09	3.67E-09	3.67E-09	3.67E-09	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Reactor	PM, Reactor/	VOC	Ethylbenzene	D3-v1	2.43E-07	2.43E-07	2.43E-07	2.43E-07	bar/ton production	2	158.91	179.82	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Reactor	PM, Reactor/	VOC	Benzene	C3-v	2.76E-09	2.76E-09	2.76E-09	2.76E-09	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Reactor	PM, Reactor/	VOC	Styrene	D3-v	2.41E-05	2.41E-05	2.41E-05	2.41E-05	bar/ton production	2	169.06	191.31	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Reactor	PM, Reactor/	VOC	Toluene	C3-v	4.37E-08	4.37E-08	4.37E-08	4.37E-08	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Reactor	PM, Reactor/	VOC	Xylene (m,p)	C3-v	2.00E-08	2.00E-08	2.00E-08	2.00E-08	bar/ton production	1	0.00	0.00	1.00
Polystyrene Manufacturing	Styrene monomer	30101818	None	Reactor	PM, Reactor/	VOC	Xylene (o)	C3-v	3.14E-09	3.14E-09	3.14E-09	3.14E-09	bar/ton production	1	0.00	0.00	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-4D 2378	A3-v0	2.37E-11	2.37E-11	2.37E-11	2.37E-11	bar/ton production	1	46.28	52.37	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-4D Total	A3-v0	3.29E-10	3.29E-10	3.29E-10	3.29E-10	bar/ton production	1	24.85	28.12	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-5D 12378	A3-v1	8.61E-11	7.10E-11	1.20E-10	7.08E-11	bar/ton production	1	34.48	39.02	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-5D Total	A3-v0	3.45E-10	3.45E-10	3.45E-10	3.45E-10	bar/ton production	1	67.83	76.87	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-6D 123478	A3-v0	2.45E-10	2.45E-10	2.45E-10	2.45E-10	bar/ton production	1	34.26	38.77	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-6D 123478	A3-v1	4.92E-10	4.92E-10	4.92E-10	4.92E-10	bar/ton production	1	31.11	35.20	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-6D Total	A3-v1	9.97E-10	9.97E-10	9.97E-10	9.97E-10	bar/ton production	1	31.11	35.20	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-7D 1234678	A3-v1	4.39E-09	3.18E-09	1.22E-08	2.01E-09	bar/ton production	1	61.00	69.06	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-7D Total	A3-v0	1.93E-08	1.93E-08	1.93E-08	1.93E-08	bar/ton production	1	27.79	31.44	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Dioxin-8D	A3-v0	1.93E-08	1.93E-08	1.93E-08	1.93E-08	bar/ton production	1	17.13	19.38	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-4F 2378	A3-v0	5.19E-08	5.19E-08	5.19E-08	5.19E-08	bar/ton production	1	55.94	63.30	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-4F Total	A3-v0	2.48E-09	2.48E-09	2.48E-09	2.48E-09	bar/ton production	1	32.12	36.35	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-5F 12378	A3-v1	1.11E-08	8.92E-09	1.88E-08	6.03E-09	bar/ton production	1	60.79	68.79	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-5F 2378	A3-v1	8.57E-10	8.04E-10	1.06E-09	7.10E-10	bar/ton production	1	21.04	23.81	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-5F Total	A3-v1	1.39E-08	1.39E-08	1.39E-08	1.39E-08	bar/ton production	1	37.93	42.92	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-6F 123478	A3-v0	5.94E-09	4.79E-09	5.77E-09	3.13E-09	bar/ton production	1	32.45	36.72	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-6F 123478	A3-v1	2.11E-09	2.11E-09	2.11E-09	2.11E-09	bar/ton production	1	29.34	33.20	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-6F Total	A3-v0	4.31E-10	4.97E-10	5.05E-10	2.80E-10	bar/ton production	1	30.64	35.01	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-7F 1234678	A3-v0	4.43E-09	7.39E-09	7.06E-09	4.24E-09	bar/ton production	1	28.24	31.96	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-7F 1234678	A3-v1	2.82E-08	2.85E-08	2.85E-08	1.50E-08	bar/ton production	1	29.36	33.22	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-7F Total	A3-v0	1.79E-08	1.94E-08	2.24E-08	1.07E-08	bar/ton production	1	29.54	33.42	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-8F	A3-v0	4.25E-09	7.22E-09	7.33E-09	4.47E-09	bar/ton production	1	34.60	39.15	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Dioxin/Furan	Furan-8F	A3-v1	1.03E-07	9.82E-08	1.30E-07	8.11E-08	bar/ton production	1	34.84	39.43	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Arsenic	D3-v0	3.87E-05	3.88E-05	4.01E-05	3.72E-05	bar/ton production	1	3.95	4.36	0.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Baryum	D3-v1	1.54E-05	1.54E-05	1.57E-05	1.49E-05	bar/ton production	1	2.96	3.35	0.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Chromium	D3-v1	1.05E-05	9.88E-06	1.34E-05	8.20E-06	bar/ton production	1	25.16	28.47	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Chromium (Hex)	A3-v0	7.00E-05	7.17E-05	7.80E-05	6.04E-05	bar/ton production	1	12.71	14.38	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Chromium (Total)	A3-v1	1.12E-04	7.86E-05	1.88E-04	7.10E-05	bar/ton production	1	58.25	65.92	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Copper	D3-v1	1.06E-04	4.42E-05	2.33E-04	4.07E-05	bar/ton production	1	103.71	117.36	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Lead	D3-v0	4.57E-05	3.92E-05	5.89E-05	3.00E-05	bar/ton production	1	24.95	28.24	0.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Manganese	D3-v0	2.55E-04	1.68E-04	4.93E-04	1.54E-04	bar/ton production	1	63.83	72.55	0.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Nickel	D3-v0	5.11E-05	4.49E-05	6.92E-05	3.92E-05	bar/ton production	1	23.11	26.15	0.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Selenium	D3-v0	4.09E-05	3.92E-05	4.83E-05	3.72E-05	bar/ton production	1	31.18	35.28	0.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	Metals	Zinc	D3-v1	8.09E-04	8.93E-04	1.07E-03	4.65E-04	bar/ton production	1	11.79	13.34	0.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Acenaphthene	C3-v1	5.75E-07	3.21E-07	6.69E-07	1.71E-07	bar/ton production	1	78.13	83.44	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Anthracene	C3-v3	9.30E-08	8.62E-08	2.77E-07	9.48E-08	bar/ton production	1	105.67	117.36	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Benzo(a)anthracene	C3-v0	1.64E-07	2.08E-08	4.88E-08	1.77E-08	bar/ton production	1	171.43	193.88	0.99
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Benzo(b)fluoranthene	C3-v0	2.91E-08	2.08E-08	4.88E-08	1.77E-08	bar/ton production	1	88.86	100.56	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Benzo(k)fluoranthene	C3-v1	2.05E-07	1.24E-07	3.90E-07	1.02E-07	bar/ton production	1	77.93	88.13	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Chrysene	C3-v0	5.69E-08	4.11E-08	1.04E-07	3.41E-08	bar/ton production	1	64.29	72.75	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Dibenz(a,h)anthracene	C3-v1	4.67E-10	4.73E-10	4.81E-10	4.47E-10	bar/ton production	1	34.34	38.86	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Fluorene	C3-v1	5.19E-07	2.80E-07	1.02E-06	2.48E-07	bar/ton production	1	3.65	4.36	0.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Fluoranthene	C3-v1	2.89E-05	1.46E-05	5.94E-06	1.26E-06	bar/ton production	1	40.12	43.39	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Indeno(1,2,3-cd)pyrene	C3-v1	9.44E-07	5.30E-07	1.88E-06	4.22E-07	bar/ton production	1	11.74	13.34	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Naphthalene	C3-v2	7.74E-05	3.87E-05	1.37E-04	6.42E-06	bar/ton production	1	54.90	62.13	1.00
Preheater Kin	Coal	30501822	C/FF	None	Preheater Kin, Coal/	PAH	Phenanthrene	C3-v1	7.09E-06	5.96E-06	9.44E-06	5.70E-06	bar/ton production	1	34.38	38.92	1.00
Preheater Kin	Coal																

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB (Bans)	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncertainty Inty. %	Def Ratio
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Acenaphthene	C3-v0	2.85E-06	2.81E-06	2.98E-06	2.78E-06	ton/Mgal	1	4.05	4.58	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Acenaphthylene	C3-v0	2.95E-06	2.81E-06	2.98E-06	2.78E-06	ton/Mgal	1	4.05	4.58	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Anthracene	C3-v0	1.33E-03	1.33E-03	1.55E-03	1.12E-03	ton/Mgal	1	18.00	18.10	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Benzo[a]anthracene	C3-v0	2.85E-08	2.81E-08	2.98E-08	2.78E-08	ton/Mgal	1	1.25	1.41	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Benzo[b]fluoranthene	C3-v0	2.85E-08	2.81E-08	2.98E-08	2.78E-08	ton/Mgal	1	4.05	4.58	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Benzo[k]fluoranthene	C3-v0	3.98E-04	3.76E-04	3.92E-04	2.59E-04	ton/Mgal	1	20.50	23.20	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Chrysene	C3-v0	4.90E-04	4.65E-04	5.06E-04	4.09E-04	ton/Mgal	1	11.99	13.41	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Dibenz[a,h]anthracene	C3-v0	1.30E-03	1.35E-03	1.43E-03	1.11E-03	ton/Mgal	1	20.69	23.41	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Fluoranthene	C3-v0	1.22E-02	1.24E-02	1.31E-02	1.11E-02	ton/Mgal	1	8.60	9.74	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Indeno[1,2,3-cd]pyrene	C3-v0	1.91E-02	1.80E-02	2.27E-02	2.02E-02	ton/Mgal	1	10.80	12.23	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Naphthalene	C3-v0	2.77E-02	2.77E-02	3.15E-02	2.42E-02	ton/Mgal	1	16.70	18.90	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	PAH	Phenanthrene	C3-v0	7.49E-03	7.40E-03	8.10E-03	6.99E-03	ton/Mgal	1	7.82	8.85	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	VOC	Benzene	C3-v0	3.25E-02	3.28E-02	3.64E-02	2.81E-02	ton/Mgal	1	7.64	8.64	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/3	VOC	Formaldehyde	C3-v1	6.82E-02	5.23E-02	1.20E-01	3.23E-02	ton/Mgal	1	12.86	14.55	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Acenaphthene	B3-v1	4.71E-04	3.42E-04	6.67E-04	2.72E-04	ton/Mgal	2	52.37	41.90	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Acenaphthylene	B3-v1	1.09E-03	1.17E-03	1.32E-03	7.56E-04	ton/Mgal	2	22.61	18.09	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Anthracene	B3-v1	1.78E-04	1.54E-04	2.89E-04	8.61E-05	ton/Mgal	2	43.47	34.78	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Benzo[a]anthracene	B3-v1	5.03E-05	4.89E-05	9.69E-05	8.44E-06	ton/Mgal	2	81.10	64.90	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Benzo[b]fluoranthene	B3-v2	1.81E-05	1.95E-05	4.77E-05	4.72E-07	ton/Mgal	2	115.27	92.24	0.44
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Benzo[k]fluoranthene	B3-v2	7.96E-05	6.63E-05	1.92E-04	8.29E-06	ton/Mgal	2	105.09	84.09	0.30
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Chrysene	B3-v2	3.89E-05	3.51E-05	8.30E-05	8.24E-07	ton/Mgal	2	107.69	86.17	0.98
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Dibenz[a,h]anthracene	B3-v2	1.56E-05	5.09E-06	6.92E-05	8.24E-07	ton/Mgal	2	171.85	137.51	0.74
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Fluoranthene	B3-v2	1.98E-04	2.35E-05	2.28E-04	1.08E-06	ton/Mgal	2	105.82	87.24	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Fluorene	B3-v0	3.75E-04	3.11E-03	1.81E-03	1.69E-04	ton/Mgal	2	105.82	87.24	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Indeno[1,2,3-cd]pyrene	B3-v2	2.89E-05	2.35E-05	5.07E-05	8.24E-07	ton/Mgal	2	54.05	43.25	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Naphthalene	B3-v2	2.89E-05	1.75E-02	1.85E-02	8.24E-07	ton/Mgal	2	42.47	32.85	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Phenanthrene	B3-v0	1.63E-02	1.75E-02	1.85E-02	1.24E-02	ton/Mgal	2	14.91	11.53	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	PAH	Pyrene	B3-v1	3.98E-03	2.89E-04	5.78E-03	1.89E-03	ton/Mgal	2	48.88	37.51	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	VOC	Acetaldehyde	A3-v0	3.47E-03	2.89E-04	5.69E-04	2.95E-05	ton/Mgal	2	84.76	67.62	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	VOC	Acrolein	A3-v1	1.07E-03	7.15E-04	1.79E-03	1.69E-03	ton/Mgal	1	75.34	63.25	0.96
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	VOC	Benzene	A3-v1	1.01E-01	9.93E-02	1.04E-01	9.93E-02	ton/Mgal	1	2.71	3.06	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	VOC	Formaldehyde	A3-v1	3.85E-01	4.03E-01	4.03E-01	4.03E-01	ton/Mgal	1	6.06	9.12	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	VOC	Toluene	A3-v0	3.74E-02	3.70E-02	3.87E-02	3.64E-02	ton/Mgal	1	3.77	3.70	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen < 13%	ICE, Diesel/1	VOC	Xylenes (Total)	A3-v0	2.48E-02	2.70E-02	2.77E-02	2.37E-02	ton/Mgal	1	3.85	4.36	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Acenaphthene	B5-v4	3.45E-03	2.64E-04	2.04E-02	1.41E-06	ton/Mgal	3	210.34	137.42	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Acenaphthylene	B5-v4	4.07E-03	1.72E-03	1.47E-02	1.41E-06	ton/Mgal	3	135.61	88.60	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Anthracene	B5-v2	8.46E-04	3.05E-04	2.58E-03	3.11E-05	ton/Mgal	3	113.05	73.86	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Benzo[a]anthracene	B5-v1	2.34E-04	2.45E-04	6.75E-04	1.58E-05	ton/Mgal	3	82.91	54.17	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Benzo[b]fluoranthene	B5-v1	1.81E-05	1.05E-06	6.93E-05	1.41E-06	ton/Mgal	3	139.83	91.35	0.03
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Benzo[k]fluoranthene	B5-v1	8.68E-06	8.68E-05	1.63E-04	1.17E-05	ton/Mgal	2	78.09	62.48	0.93
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Chrysene	B5-v2	1.44E-06	1.45E-06	1.48E-06	1.41E-06	ton/Mgal	1	1.90	2.14	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Dibenz[a,h]anthracene	B5-v0	3.28E-05	2.83E-05	1.55E-04	7.14E-06	ton/Mgal	3	95.94	62.68	0.48
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Fluoranthene	B5-v2	5.30E-05	5.41E-05	7.33E-05	1.60E-05	ton/Mgal	2	53.02	42.43	0.68
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Fluorene	B5-v2	1.35E-03	5.95E-05	1.44E-04	2.72E-05	ton/Mgal	3	92.94	60.72	0.36
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Indeno[1,2,3-cd]pyrene	B5-v2	5.52E-03	6.75E-03	2.70E-03	6.99E-05	ton/Mgal	2	74.07	59.27	0.82
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Naphthalene	B5-v2	4.63E-05	3.25E-05	1.05E-02	2.10E-04	ton/Mgal	3	68.98	45.06	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Phenanthrene	B5-v2	9.47E-02	1.25E-02	1.58E-01	5.92E-03	ton/Mgal	3	109.00	71.21	0.35
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	PAH	Pyrene	B5-v2	5.41E-02	5.82E-03	2.31E-02	3.11E-04	ton/Mgal	3	90.25	58.86	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Benzaldehyde	B5-v1	1.26E-02	1.01E-03	1.44E-03	1.17E-04	ton/Mgal	3	49.81	35.54	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Acetaldehyde	A3-v0	1.07E-01	1.07E-01	1.52E-01	5.82E-02	ton/Mgal	1	6.29	7.12	0.68
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Acrolein	A3-v1	1.30E-02	8.43E-03	1.16E-02	5.82E-02	ton/Mgal	1	43.11	34.50	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Benzene	B3-v1	1.22E-01	1.13E-01	1.91E-01	6.57E-02	ton/Mgal	2	48.35	38.68	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Formaldehyde	A2-v2	3.58E-01	3.93E-01	5.83E-01	9.68E-03	ton/Mgal	3	90.24	58.95	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Propylene	B3-v0	1.68E-01	1.68E-01	3.93E-01	1.45E-01	ton/Mgal	2	56.61	45.30	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Toluene	B3-v0	5.50E-02	2.46E-02	7.56E-02	3.44E-02	ton/Mgal	2	38.06	30.45	1.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Xylenes (m,p)	C3-v0	2.16E-02	2.09E-02	2.40E-02	1.88E-02	ton/Mgal	1	10.07	11.40	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Xylenes (o)	C3-v0	2.99E-02	2.99E-02	3.29E-02	2.99E-02	ton/Mgal	1	0.00	0.00	0.00
Reciprocating ICE	Diesel	202001.02	None	Oxygen > 13%	ICE, Diesel/4	VOC	Xylenes (Total)	A3-v0	3.55E-02	4.44E-02	4.44E-02	1.88E-02	ton/Mgal	1	41.24	46.67	0.00
Reciprocating ICE	Diesel	203001.01	None	Oxygen < 13%	ICE, Diesel/2	PAH	Acenaphthene	B3-v1	8.71E-04	3.30E-04	3.59E-03	2.80E-04	ton/Mgal	2	153.18	122.57	0.84
Reciprocating ICE	Diesel	203001.01	None	Oxygen < 13%	ICE, Diesel/2	PAH	Acenaphthylene	B3-v1	9.45E-04	8.61E-04	2.05E-03	2.80E-04	ton/Mgal	2	77.77	62.23	0

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncert. Int., %	Dev Ratio
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Benzofluoranthene	B3-v2	1.44E-04	1.44E-04	2.80E-04	7.39E-06	Bo/Mgal	2	103.38	92.88	0.03
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Benzofluoranthene	B3-v2	1.44E-04	1.44E-04	2.80E-04	7.39E-06	Bo/Mgal	2	106.23	85.00	0.02
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Benzofluoranthene	B3-v3	1.41E-04	1.41E-04	2.80E-04	8.45E-07	Bo/Mgal	2	108.58	86.88	0.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Chrysene	B3-v3	1.53E-04	1.54E-04	2.80E-04	2.27E-05	Bo/Mgal	2	90.60	72.58	0.09
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Dibenz(b,h)anthracene	B3-v3	1.40E-04	1.40E-04	2.80E-04	5.27E-07	Bo/Mgal	2	108.13	87.32	0.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Fluoranthene	B3-v3	2.84E-04	2.80E-04	3.90E-04	2.57E-04	Bo/Mgal	2	8.42	6.74	0.51
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Indeno(1,2,3-cd)pyrene	B3-v3	6.49E-04	5.90E-04	1.24E-03	2.80E-04	Bo/Mgal	2	65.14	52.12	0.78
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Naphthalene	B3-v3	1.40E-04	1.41E-04	2.80E-04	7.55E-07	Bo/Mgal	2	108.84	87.09	0.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Phenanthrene	B3-v2	3.11E-02	1.98E-02	3.19E-02	2.98E-02	Bo/Mgal	2	89.99	72.01	1.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	PAH	Pyrene	B3-v2	3.11E-02	2.90E-02	6.48E-02	8.00E-05	Bo/Mgal	2	98.67	79.95	1.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	SVOC	Ethylbenzene	B3-v0	6.78E-03	6.64E-03	8.03E-03	5.69E-03	Bo/Mgal	2	22.88	18.31	0.41
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	VOC	Benzene	B3-v0	2.85E-01	3.39E-01	3.90E-01	1.57E-04	Bo/Mgal	2	18.09	20.47	1.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	VOC	Formaldehyde	B3-v1	8.79E-02	7.33E-02	1.76E-01	1.46E-02	Bo/Mgal	2	15.21	17.22	1.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	VOC	Heptane	B3-v0	3.19E-01	1.45E-03	1.47E-03	1.46E-02	Bo/Mgal	2	77.77	62.23	1.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	VOC	Propylene	B3-v0	2.97E-01	2.99E-01	3.45E-01	6.55E-01	Bo/Mgal	1	9.06	10.25	1.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	VOC	Toluene	B3-v1	8.50E-02	8.05E-02	1.11E-01	6.37E-02	Bo/Mgal	1	15.30	17.31	1.00
Reciprocating ICE	Diesel	20300101	None	Oxygen < 13%	ICE, Diesel2	VOC	Xylenes (Total)	B3-v1	1.51E-02	1.74E-02	2.06E-02	6.50E-02	Bo/Mgal	1	28.04	31.73	1.00
Reciprocating ICE	Field gas	20200202	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Benzene	A2-v1	1.72E-00	2.07E-00	2.24E-00	7.25E-03	Bo/Mgal	3	35.58	28.47	1.00
Reciprocating ICE	Field gas	20200202	None	Lean/4S/-650 Hp	ICE, Field Gas1	VOC	Formaldehyde	A2-v1	4.15E-01	3.14E-01	6.75E-01	9.42E-01	Bo/Mgal	3	76.73	50.13	1.00
Reciprocating ICE	Field gas	20200202	None	Lean/4S/-650 Hp	ICE, Field Gas1	VOC	Propylene	A2-v1	1.59E-01	1.64E-01	1.02E-01	9.48E-00	Bo/Mgal	3	30.49	24.40	1.00
Reciprocating ICE	Field gas	20200202	None	Lean/4S/-650 Hp	ICE, Field Gas1	VOC	Toluene	A2-v1	7.66E-01	9.36E-01	1.02E-01	2.89E-01	Bo/Mgal	3	51.12	40.90	1.00
Reciprocating ICE	Field gas	20200202	None	Lean/4S/-650 Hp	ICE, Field Gas1	VOC	Xylenes (m,p)	A2-v1	3.02E-01	1.90E-01	1.17E-00	7.44E-02	Bo/Mgal	3	99.71	79.78	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Xylenes (o)	A2-v1	8.97E-02	9.53E-02	9.03E-01	6.13E-02	Bo/Mgal	3	25.60	20.49	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Benzene	A3-v0	1.31E-01	1.31E-01	1.25E-01	1.28E-01	Bo/Mgal	1	5.89	8.17	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Formaldehyde	A3-v0	7.60E-01	7.25E-01	8.53E-01	7.01E-01	Bo/Mgal	1	10.80	12.22	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Propylene	A3-v0	4.02E-01	4.02E-01	4.02E-01	4.02E-01	Bo/Mgal	1	0.00	0.00	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Toluene	A3-v0	4.83E-00	4.83E-00	5.74E-00	3.92E-00	Bo/Mgal	1	28.70	37.01	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Xylenes (m,p)	A3-v0	1.13E-00	1.13E-00	1.28E-00	1.01E-00	Bo/Mgal	1	14.63	20.28	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Xylenes (o)	A3-v0	5.64E-01	5.82E-01	9.11E-01	3.71E-01	Bo/Mgal	1	6.83	9.46	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Acenaphthene	A3-v1	7.41E-04	7.41E-04	1.08E-03	4.00E-04	Bo/Mgal	1	65.08	60.19	0.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Acenaphthylene	A3-v1	1.11E-02	1.17E-02	1.57E-02	6.44E-03	Bo/Mgal	1	59.06	81.86	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Anthracene	A3-v0	4.52E-03	4.50E-03	6.67E-03	2.34E-03	Bo/Mgal	1	67.84	84.02	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Benzofluoranthene	A3-v0	8.97E-04	8.97E-04	1.11E-04	8.83E-04	Bo/Mgal	1	2.17	3.01	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Benzofluoranthene	A3-v1	8.75E-04	1.53E-03	2.18E-04	2.18E-04	Bo/Mgal	1	106.44	147.52	0.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Benzofluoranthene	A3-v1	1.48E-04	1.48E-04	1.71E-04	1.24E-04	Bo/Mgal	1	22.41	31.05	0.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Benzofluoranthene	A3-v0	9.40E-05	9.40E-05	9.92E-05	8.89E-05	Bo/Mgal	1	7.74	10.75	0.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Chrysene	A3-v0	4.37E-03	4.57E-03	6.49E-03	4.44E-03	Bo/Mgal	1	3.78	5.23	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Dibenz(b,h)anthracene	A3-v0	1.98E-03	1.69E-03	1.58E-03	9.43	Bo/Mgal	1	9.43	13.07	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Fluoranthene	A3-v0	7.70E-05	7.68E-05	8.29E-05	7.11E-05	Bo/Mgal	1	42.86	53.06	0.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Fluorene	A3-v0	2.44E-03	2.44E-03	3.61E-03	1.27E-03	Bo/Mgal	1	10.96	15.03	0.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Indeno(1,2,3-cd)pyrene	A3-v0	1.97E-04	1.37E-04	1.48E-04	1.29E-04	Bo/Mgal	1	67.90	94.10	0.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	PAH	Naphthalene	A3-v0	4.91E-03	4.91E-03	6.48E-03	3.39E-03	Bo/Mgal	1	8.83	12.24	0.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Phenanthrene	A3-v0	2.19E-01	2.22E-01	2.22E-01	2.16E-01	Bo/Mgal	1	1.88	2.61	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Pyrene	A3-v0	4.91E-03	4.91E-03	6.48E-03	3.39E-03	Bo/Mgal	1	45.48	65.00	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Acetaldehyde	A3-v1	2.39E-04	3.06E-04	3.06E-04	1.71E-04	Bo/Mgal	1	40.10	55.57	0.64
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Benzene	A3-v1	8.77E-00	9.42E-00	1.14E-01	5.53E-00	Bo/Mgal	1	33.90	38.37	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Formaldehyde	A3-v1	2.00E-00	1.44E-00	4.36E-00	2.00E-01	Bo/Mgal	1	105.79	123.84	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Propylene	A3-v1	4.39E-00	4.33E-00	6.56E-01	4.21E-00	Bo/Mgal	1	4.34	4.82	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Toluene	A3-v1	1.47E-01	1.50E-01	1.77E-01	1.14E-01	Bo/Mgal	1	134.14	151.79	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Xylenes (m,p)	A3-v1	1.54E-00	2.03E-00	2.38E-00	2.23E-01	Bo/Mgal	1	21.50	24.33	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Xylenes (o)	A3-v1	2.54E-01	2.57E-01	3.17E-01	1.89E-01	Bo/Mgal	1	74.82	84.66	1.00
Reciprocating ICE	Field gas	20200252	None	Lean/2S/-650 Hp	ICE, Field Gas2	VOC	Benzene	A3-v1	1.03E-01	1.08E-01	1.37E-01	6.80E-02	Bo/Mgal	1	25.28	28.59	1.00
Reciprocating ICE	Field gas	20200254	None	Rich/4S/-650 Hp	ICE, Field Gas4	VOC	Benzene	A3-v0	1.10E-01	1.10E-01	1.11E-01	1.09E-01	Bo/Mgal	1	1.15	1.96	1.00
Reciprocating ICE	Field gas	20200254	None	Rich/4S/-650 Hp	ICE, Field Gas4	VOC	Formaldehyde	A3-v0	5.05E-00	4.65E-00	5.98E-00	4.52E-00	Bo/Mgal	1	30.54	31.84	1.00
Reciprocating ICE	Field gas	20200254	None	Rich/4S/-650 Hp	ICE, Field Gas4	VOC	Propylene	A3-v0	3.04E-00	3.04E-00	3.04E-00	3.04E-00	Bo/Mgal	1	15.81	16.00	1.00
Reciprocating ICE	Field gas	20200254	None	Rich/4S/-650 Hp	ICE, Field Gas4	VOC	Toluene	A3-v0	3.44E-00	3.44E-00	3.55E-00	3.33E-00	Bo/Mgal	1	4.86	6.32	1.00
Reciprocating ICE	Field gas	20200254	None	Rich/4S/-650 Hp	ICE, Field Gas4	VOC	Xylenes (m,p)	A3-v0	5.37E-01	5.37E-01	5.62E-01	5.11E-01	Bo/Mgal	1	6.73	9.33	1.00
Reciprocating ICE	Field gas	20200254	None	Rich/4S/-650 Hp	ICE, Field Gas4	VOC	Xylenes (o)	A3-v0	2.68E-01	2.68E-01	2.81E-01	2.55E-01	Bo/Mgal	1	6.73	9.33	1.00
Reciprocating ICE	Landfill gas	20100802	None	None	ICE, Landfill Gas1	HCI	HCl	C3-v1	1.50E-00	1.57E-00	2.07E-00	8.22E-01	Bo/Mgal	2	39.55	37.24	1.00
Reciprocating ICE	Landfill gas	20100802	None	None	ICE, Landfill Gas1	PAH	Acenaphthene	A3-v0	1.83E-04	1.80E-04	3.01E-04	1.11E-04	Bo/Mgal	2	50.04	49.04	0.46
Reciprocating ICE	Landfill gas																

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARF Ratio	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD%, %	Uncertainty Int., %	Def Ratio
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Indeno(1,2,3-cd)pyrene	B3-v0	2.07E-04	1.85E-04	3.11E-04	1.27E-04	lb/MMBtu	2	35.99	31.55	1.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Naphthalene	B3-v0	9.75E-02	3.98E-02	1.06E-01	2.52E-02	lb/MMBtu	2	155.82	124.66	1.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Phenanthrene	B3-v0	3.74E-03	3.75E-03	5.62E-03	1.64E-03	lb/MMBtu	2	43.89	35.12	1.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Benzene	B3-v0	2.62E-03	1.64E-03	4.68E-03	1.81E-03	lb/MMBtu	2	40.82	32.66	1.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Carbon Tetrachloride	B3-v0	7.5E-01	1.62E-01	2.09E-01	1.18E-01	lb/MMBtu	2	22.65	18.12	1.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Chloroform	B3-v0	7.78E-03	7.89E-03	6.77E-03	6.72E-03	lb/MMBtu	2	1.55	1.24	0.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Ethylene dichloride	B3-v0	6.02E-03	6.02E-03	6.11E-03	5.94E-03	lb/MMBtu	2	1.55	1.24	0.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Ethylene dibromide	B3-v0	9.51E-03	9.51E-03	9.64E-03	9.37E-03	lb/MMBtu	2	1.55	1.24	0.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Formaldehyde	B3-v0	5.01E-03	4.95E-01	4.47E-02	5.70E-02	lb/MMBtu	2	1.55	1.24	0.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Methyl Chloroform	B3-v1	1.00E-02	6.95E-03	2.64E-02	6.69E-03	lb/MMBtu	2	127.38	101.93	1.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Methylene Chloride	B3-v2	2.23E-01	1.21E-01	4.68E-01	8.72E-01	lb/MMBtu	2	80.11	64.10	0.44
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Pentachloroethane	B3-v0	1.26E-02	1.26E-02	1.26E-02	1.24E-02	lb/MMBtu	2	88.27	70.63	0.99
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Tetrachloroethane	B3-v0	8.31E-03	8.31E-03	8.43E-03	8.19E-03	lb/MMBtu	2	1.55	1.24	0.00
Reciprocating ICE	Landfill gas	20100802	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Vinyl Chloride	B3-v0	3.95E-03	3.95E-03	4.01E-03	3.99E-03	lb/MMBtu	2	1.55	1.24	0.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Acenaphthene	A3-v0	7.17E-04	6.36E-04	9.60E-04	5.57E-04	lb/MMBtu	1	29.78	37.71	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Acenaphthylene	A3-v0	7.59E-03	1.07E-02	4.40E-03	4.06E-03	lb/MMBtu	1	41.56	47.03	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Anthracene	A3-v0	2.56E-04	2.40E-04	3.69E-04	1.60E-04	lb/MMBtu	1	41.20	46.82	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Benzo(a)anthracene	A3-v0	7.78E-05	7.85E-05	9.60E-05	5.91E-05	lb/MMBtu	1	23.70	26.82	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Benzo(b)fluoranthene	A3-v0	3.55E-05	2.93E-05	5.17E-05	2.54E-05	lb/MMBtu	1	39.97	45.23	0.76
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Benzo(k)fluoranthene	A3-v2	3.27E-04	4.43E-05	9.29E-04	6.26E-06	lb/MMBtu	1	159.90	180.94	0.95
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Benzo(g,h)perylene	A3-v1	1.03E-04	2.93E-05	2.58E-04	2.08E-05	lb/MMBtu	1	131.00	148.24	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Chrysene	A3-v2	5.30E-04	4.87E-04	1.07E-03	3.08E-05	lb/MMBtu	1	98.44	111.40	0.88
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Dibenz(a,h)anthracene	A3-v1	9.84E-05	1.11E-05	1.47E-05	6.96E-06	lb/MMBtu	1	35.41	40.07	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Fluorene	A3-v0	2.50E-04	2.64E-04	3.32E-04	1.53E-04	lb/MMBtu	1	36.21	40.98	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Fluoranthene	A3-v0	4.60E-04	4.16E-04	6.28E-04	3.37E-04	lb/MMBtu	1	32.63	36.92	0.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Indeno(1,2,3-cd)pyrene	A3-v1	1.22E-01	3.91E-05	2.95E-04	2.49E-05	lb/MMBtu	1	127.40	144.16	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Naphthalene	A3-v1	8.93E-04	8.31E-04	1.26E-03	5.91E-04	lb/MMBtu	1	73.21	82.85	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	PAH	Phenanthrene	A3-v1	8.23E-04	1.42E-04	1.62E-04	6.61E-05	lb/MMBtu	1	41.10	46.51	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Acetaldehyde	A1-v0	3.99E-00	2.96E-00	9.94E-00	1.52E-00	lb/MMBtu	5	94.92	32.85	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Acrolein	A1-v1	1.21E-00	1.22E-00	2.47E-00	2.01E-01	lb/MMBtu	5	82.02	48.20	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Formaldehyde	A1-v1	2.87E-01	2.77E-01	4.79E-01	9.68E-01	lb/MMBtu	7	47.28	34.79	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Propylene	A1-v1	1.87E-01	8.81E-01	5.85E-01	4.12E-00	lb/MMBtu	7	109.05	57.12	0.97
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Toluene	A1-v0	4.12E-01	3.96E-01	5.70E-01	1.65E-01	lb/MMBtu	7	33.98	17.90	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Xylene (m,p)	A1-v1	8.93E-02	8.13E-02	1.59E-01	5.92E-02	lb/MMBtu	7	46.37	24.24	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/1	VOC	Xylene (o)	A1-v1	8.94E-02	9.14E-02	1.06E-02	1.06E-02	lb/MMBtu	7	39.52	50.70	0.85
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Acenaphthene	A3-v1	1.51E-04	1.56E-04	2.17E-04	9.58E-05	lb/MMBtu	2	33.63	36.31	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Acenaphthylene	A3-v0	5.25E-04	5.16E-04	7.35E-04	3.58E-04	lb/MMBtu	2	23.88	19.11	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Anthracene	A3-v1	1.18E-04	1.13E-04	1.71E-04	6.29E-05	lb/MMBtu	2	32.95	26.37	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Benzo(a)anthracene	A3-v0	5.88E-05	5.03E-05	9.92E-05	2.81E-05	lb/MMBtu	2	56.56	45.69	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Benzo(b)fluoranthene	A3-v0	2.70E-06	2.52E-06	3.88E-06	1.84E-06	lb/MMBtu	2	35.83	28.67	0.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Benzo(k)fluoranthene	A3-v1	4.09E-05	3.49E-05	7.98E-05	1.22E-05	lb/MMBtu	2	58.71	45.38	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Benzo(g,h)perylene	A3-v1	7.54E-06	6.81E-06	1.21E-05	1.84E-06	lb/MMBtu	2	80.22	64.19	0.92
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Chrysene	A3-v1	1.43E-05	1.58E-05	2.55E-05	3.19E-06	lb/MMBtu	2	45.21	38.17	0.93
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Dibenz(a,h)anthracene	A3-v0	2.70E-06	2.52E-06	3.88E-06	1.84E-06	lb/MMBtu	2	50.42	40.94	0.96
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Fluorene	A3-v0	2.91E-04	2.59E-06	6.38E-06	8.4E-08	lb/MMBtu	2	50.10	40.69	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Fluoranthene	A3-v0	2.91E-04	2.98E-04	4.57E-04	1.29E-04	lb/MMBtu	2	58.05	46.45	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Indeno(1,2,3-cd)pyrene	A3-v0	7.17E-02	3.44E-02	3.10E-02	2.07E-02	lb/MMBtu	2	43.57	34.86	0.96
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Naphthalene	A3-v0	1.85E-03	1.80E-03	2.78E-03	1.11E-03	lb/MMBtu	2	18.15	14.52	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	PAH	Phenanthrene	A3-v1	1.87E-04	1.91E-04	3.26E-04	6.65E-05	lb/MMBtu	2	37.16	29.73	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	Benzene	C3-v1	1.71E-02	7.00E-02	1.15E-01	2.59E-02	lb/MMBtu	2	48.82	39.86	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	Ethylbenzene	A3-v2	3.87E-01	3.78E-01	4.15E-01	2.78E-01	lb/MMBtu	2	50.37	40.31	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	1,3-Butadiene	A3-v2	5.29E-01	3.92E-02	6.25E-02	2.08E-02	lb/MMBtu	2	14.65	11.72	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	Acrolein	A3-v0	1.80E-02	3.92E-02	1.61E-01	2.08E-02	lb/MMBtu	2	196.56	157.12	0.96
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	Formaldehyde	B3-v0	2.18E-01	1.21E-01	2.09E-01	1.83E-01	lb/MMBtu	2	88.08	79.47	0.45
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	Propylene	B3-v0	4.71E-00	3.85E-01	1.21E-01	1.56E-02	lb/MMBtu	2	157.78	103.08	0.97
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	Toluene	C3-v1	5.38E-00	4.59E-00	1.21E-01	3.56E-00	lb/MMBtu	2	61.42	43.15	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	Xylene	C3-v1	6.46E-01	2.59E-01	9.94E-01	9.08E-02	lb/MMBtu	2	45.93	37.55	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	Xylene (Total)	C3-v2	6.46E-01	6.85E-01	9.65E-01	2.46E-01	lb/MMBtu	2	48.98	39.79	1.00
Reciprocating ICE	Natural gas	20200202	None	Lean/AS<-650 Hp	ICE, Natural Gas/2	VOC	Formaldehyde	C3-v2	5.15E-00	7.20E-01	2.14E-01	5.99E-01					

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SO2	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor	Tests	RSD, %	Uncertainty, %	Dev Ratio
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	PAH	Chrysene	A3-v0	3.10E-04	2.91E-04	3.95E-04	2.45E-04	lb/MMcf	1	24.83	28.10	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	PAH	Dibenz(a,h)anthracene	A3-v0	1.25E-05	1.17E-05	1.45E-05	1.14E-05	lb/MMcf	1	13.71	15.52	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	PAH	Fluorene	A3-v0	9.95E-04	9.60E-04	1.20E-03	8.21E-04	lb/MMcf	1	19.50	22.07	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	PAH	Fluoranthene	A3-v0	6.91E-03	6.62E-03	9.04E-03	5.08E-03	lb/MMcf	1	28.82	32.61	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	PAH	Indeno(1,2,3-cd)pyrene	A3-v0	1.69E-04	1.60E-04	2.07E-04	1.40E-04	lb/MMcf	1	20.68	23.40	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	PAH	Naphthalene	A3-v0	7.65E-02	8.47E-02	8.66E-02	5.93E-02	lb/MMcf	1	27.18	30.73	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	PAH	Phenanthrene	A3-v0	7.07E-03	7.34E-03	8.85E-03	5.03E-03	lb/MMcf	1	42.04	47.57	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	S/VO	Pyrene	A3-v0	1.79E-03	1.54E-03	2.64E-03	1.18E-03	lb/MMcf	1	26.96	30.50	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	1,3-Butadiene	C3-v0	1.04E-01	1.05E-01	1.05E-01	1.04E-01	lb/MMcf	1	0.36	0.42	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	Acetaldehyde	A3-v2	8.93E-01	8.94E-01	1.02E-00	4.03E-01	lb/MMcf	2	102.49	82.01	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	Acrolein	A3-v1	7.94E-01	7.94E-01	1.37E-00	4.03E-01	lb/MMcf	2	42.60	34.08	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	Benzene	B2-v3	1.91E-00	1.92E-01	1.02E-01	1.02E-01	lb/MMcf	4	206.43	121.99	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	Formaldehyde	B3-v2	1.60E-01	1.45E-01	2.05E-01	1.03E-02	lb/MMcf	2	159.50	90.24	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	Propylene	B3-v2	1.07E-00	1.09E-01	4.90E-01	2.07E-01	lb/MMcf	2	134.24	117.66	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	Toluene	B3-v2	1.07E-00	1.09E-01	4.90E-01	2.07E-01	lb/MMcf	2	123.82	108.53	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	Xylene (m,p)	A3-v0	4.41E-01	4.41E-01	4.45E-01	4.28E-01	lb/MMcf	1	4.04	5.80	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	Xylene (o)	A3-v0	2.17E-01	2.17E-01	2.22E-01	2.12E-01	lb/MMcf	1	3.29	4.56	1.00
Reciprocating ICE	Natural gas	20200254	None	RichV4S<650 Hp	ICE, Natural Gas/2	VOC	Xylene (Total)	C3-v0	6.02E-02	5.71E-02	7.25E-02	3.95E-02	lb/MMcf	1	30.89	35.00	1.00
Steam Generator	Crude oil	31000413	None	None	Halogens	Metals	HCl	D2-v1	1.80E-04	1.81E-04	2.09E-04	1.77E-04	lb/MMcf	1	8.82	10.09	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Arsenic	D2-v1	9.97E-04	6.36E-04	2.19E-03	3.95E-04	lb/MMcf	3	83.25	54.39	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Beryllium	D2-v1	2.08E-04	2.45E-04	3.19E-04	4.71E-05	lb/MMcf	3	58.45	38.19	0.47
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Cadmium	D2-v1	1.63E-04	1.48E-04	5.45E-04	2.40E-05	lb/MMcf	3	100.53	65.68	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Chromium (Max)	D2-v1	1.65E-04	1.59E-04	3.98E-04	5.75E-05	lb/MMcf	3	55.52	38.27	0.47
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Chromium (Total)	D2-v1	8.59E-04	8.78E-04	2.18E-03	1.53E-04	lb/MMcf	3	84.23	55.03	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Copper	D2-v1	9.93E-04	1.04E-03	4.90E-03	4.78E-04	lb/MMcf	3	47.12	30.79	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Lead	D2-v1	3.03E-04	2.86E-04	4.90E-04	1.79E-04	lb/MMcf	3	33.44	21.85	0.52
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Manganese	D2-v3	2.19E-03	2.81E-03	5.72E-03	8.63E-06	lb/MMcf	3	63.89	47.33	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Mercury	D2-v3	2.19E-03	2.81E-03	5.72E-03	8.63E-06	lb/MMcf	3	122.81	70.38	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Nickel	D2-v3	2.19E-03	2.81E-03	5.72E-03	8.63E-06	lb/MMcf	3	5.92	3.80	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Phosphorus	D3-v1	2.65E-02	4.48E-02	6.78E-02	2.73E-02	lb/MMcf	3	107.66	70.34	0.96
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Selenium	D2-v2	1.18E-02	2.87E-02	2.60E-01	2.40E-01	lb/MMcf	3	127.20	83.10	0.84
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Zinc	D2-v2	8.08E-05	6.56E-05	9.22E-05	2.02E-05	lb/MMcf	3	110.99	88.10	0.47
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Acenaphthene	C2-v2	7.48E-05	2.07E-05	1.79E-05	2.13E-07	lb/MMcf	2	83.42	54.50	0.47
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Acenaphthylene	C2-v2	7.48E-05	2.07E-05	1.79E-05	2.13E-07	lb/MMcf	2	134.01	92.86	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Anthracene	C2-v2	7.48E-05	2.07E-05	1.79E-05	2.13E-07	lb/MMcf	2	60.41	48.34	0.24
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzo(a)anthracene	C2-v2	7.48E-05	2.07E-05	1.79E-05	2.13E-07	lb/MMcf	2	110.57	125.12	0.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzo(b)fluoranthene	C3-v1	7.11E-06	4.27E-06	1.60E-05	1.07E-06	lb/MMcf	2	60.41	48.34	0.24
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzo(k)fluoranthene	C3-v1	7.11E-06	4.27E-06	1.60E-05	1.07E-06	lb/MMcf	2	110.57	125.12	0.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzo(a)pyrene	C3-v0	1.20E-05	1.19E-05	1.25E-05	1.15E-05	lb/MMcf	1	4.07	1.61	0.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzo(b)perylene	C3-v0	1.20E-05	1.19E-05	1.25E-05	1.15E-05	lb/MMcf	1	63.37	50.71	0.21
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzo(g,h)perylene	C3-v1	6.95E-07	5.34E-07	1.07E-06	2.13E-07	lb/MMcf	1	71.32	80.70	0.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzo(i)perylene	C3-v1	6.95E-07	5.34E-07	1.07E-06	2.13E-07	lb/MMcf	1	93.50	61.09	0.64
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Chrysene	C2-v1	1.12E-05	1.15E-05	3.45E-05	1.07E-06	lb/MMcf	2	61.45	48.17	0.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Fluorene	C2-v1	1.31E-05	1.15E-05	5.23E-05	1.07E-06	lb/MMcf	2	116.91	75.87	0.70
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Indeno(1,2,3-cd)pyrene	C2-v1	1.42E-05	7.13E-06	4.59E-05	1.07E-06	lb/MMcf	2	64.32	51.37	0.22
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Naphthalene	C2-v2	2.49E-05	6.99E-06	1.82E-04	2.20E-06	lb/MMcf	3	208.44	136.18	1.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Phenanthrene	C2-v1	7.94E-06	4.51E-04	1.82E-04	2.12E-04	lb/MMcf	3	65.89	58.64	0.82
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Pyrene	C2-v1	2.27E-05	1.25E-05	7.22E-05	1.07E-06	lb/MMcf	1	61.71	7.60	0.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzo(a)anthracene	A3-v0	7.03E-03	7.27E-03	7.34E-03	6.49E-03	lb/MMcf	1	52.69	34.42	0.54
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzo(b)anthracene	A3-v0	2.87E-03	2.16E-03	5.10E-03	1.18E-03	lb/MMcf	2	106.34	70.78	0.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Acenaphthylene	A3-v0	1.78E-03	4.19E-04	4.55E-03	4.99E-04	lb/MMcf	2	44.19	25.86	0.36
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Acrolein	B3-v0	8.13E-04	6.60E-04	9.60E-04	3.00E-04	lb/MMcf	2	52.64	34.39	0.44
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Benzene	A3-v1	9.44E-04	8.09E-04	1.64E-03	4.05E-04	lb/MMcf	2	146.15	94.83	0.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Formaldehyde	B3-v2	5.80E-02	1.97E-03	1.70E-01	1.87E-03	lb/MMcf	2	88.54	57.84	0.74
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Toluene	B3-v1	3.54E-03	2.06E-03	1.16E-02	2.05E-03	lb/MMcf	2	85.22	45.81	0.00
Steam Generator	Crude oil	31000413	None	None	Metals	Metals	Xylene (Total)	B3-v1	3.29E-03	4.72E-03	4.72E-03	4.72E-03	lb/MMcf	2	8.92	10.09	1.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	Halogens	Metals	HCl	D2-v1	1.80E-04	1.81E-04	2.09E-04	1.77E-04	lb/MMcf	1	8.92	10.09	1.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	Metals	Metals	Arsenic	D2-v1	9.97E-04	6.36E-04	2.19E-03	3.95E-04	lb/MMcf	3	83.25	54.39	1.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	Metals	Metals	Beryllium	D2-v1	2.08E-04	2.45E-04	3.19E-04	4.71E-05	lb/MMcf	3	100.53	65.68	1.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	Metals	Metals	Cadmium	D2-v1	1.63E-04	1.48E-04	5.45E-04	2.40E-05	lb/MMcf	3	55.52	38.27	0.47
Steam Generator	Crude oil	31000413	SO2 Scrub	None	Metals	Metals	Chromium (Max)	D2-v1	1.65E-04	1.59E-04	3.98E-04	5.75E-05	lb/MMcf	3	84.23	55.03	1.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	Metals	Metals	Chromium (Total)	D2-v1	8.59E-04	8.78E-04	2.18E-03	1.53E-04	lb/MMcf	3	47.12	30.79	1.00
Steam Generator	Crude oil																

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor	Tests	RSD-%	Uncertainty	Def
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Acenaphthylene	C2-V2	7.48E-06	5.58E-06	1.79E-05	2.13E-07	lb/Mgal	3	83.42	54.50	0.47
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Anthracene	C2-V2	7.98E-06	3.14E-06	2.51E-05	3.20E-07	lb/Mgal	3	134.01	92.86	1.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Benzofluoranthene	C2-V2	7.74E-06	9.22E-06	1.49E-05	5.34E-07	lb/Mgal	3	72.06	48.94	0.42
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Benzofluoranthene	C3-V1	7.11E-06	4.27E-06	1.69E-05	5.94E-07	lb/Mgal	2	110.57	48.34	0.24
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Benzofluoranthene	C3-V1	1.20E-05	1.19E-05	1.29E-05	1.15E-05	lb/Mgal	1	4.07	4.61	0.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Benzofluoranthene	C3-V1	6.05E-07	5.34E-07	1.07E-06	2.13E-07	lb/Mgal	2	63.37	50.71	0.21
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Benzofluoranthene	C2-V1	1.12E-05	1.15E-05	3.45E-05	1.07E-06	lb/Mgal	1	71.32	80.70	0.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Fluorene	C2-V1	7.94E-06	9.50E-06	1.25E-05	1.07E-06	lb/Mgal	2	61.45	49.17	0.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Fluorene	C2-V1	1.42E-05	1.15E-05	5.23E-05	1.07E-06	lb/Mgal	2	64.32	51.47	0.22
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Indeno(1,2,3-c)pyrene	C3-V1	7.94E-06	1.06E-05	1.25E-05	1.07E-06	lb/Mgal	2	81.32	56.35	1.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Naphthalene	C2-V1	7.94E-06	4.51E-04	1.69E-03	2.12E-04	lb/Mgal	3	208.44	136.18	1.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Phenanthrene	C2-V1	2.27E-05	1.25E-05	7.29E-05	2.02E-06	lb/Mgal	3	95.89	62.64	0.82
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	PAH	Pyrene	C2-V1	2.27E-05	1.25E-05	7.29E-05	2.02E-06	lb/Mgal	3	95.89	62.64	0.82
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	SVOC	Acetaldehyde	A3-V0	7.09E-03	7.27E-03	7.34E-03	6.49E-03	lb/Mgal	1	6.71	7.60	0.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	VOC	Acetaldehyde	A3-V0	2.67E-03	2.18E-03	5.10E-03	1.18E-03	lb/Mgal	2	52.69	34.42	0.54
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	VOC	Acrolein	A3-V0	1.78E-03	4.98E-04	4.55E-03	4.98E-04	lb/Mgal	2	108.34	70.78	0.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	VOC	Benzene	B3-V0	6.13E-04	6.69E-04	9.90E-04	3.00E-04	lb/Mgal	2	44.18	28.86	0.36
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	VOC	Formaldehyde	A3-V1	9.44E-04	8.98E-04	1.64E-03	4.05E-04	lb/Mgal	2	52.64	34.38	0.44
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	VOC	Propylene	B3-V2	5.80E-02	1.87E-03	1.70E-01	1.87E-03	lb/Mgal	2	145.15	94.83	0.00
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	VOC	Toluene	B3-V1	3.56E-03	2.05E-03	1.16E-02	2.05E-03	lb/Mgal	2	88.54	57.84	0.74
Steam Generator	Crude oil	31000413	SO2 Scrub	None	SG, Crude Oil/1	VOC	Xylene (Total)	B3-V1	3.29E-03	4.72E-03	4.72E-03	4.29E-04	lb/Mgal	2	85.22	42.61	0.00
Steam Generator	Natural gas	31000414	None	None	SG, Natural Gas/1	VOC	Benzene	A3-V0	3.88E-03	3.88E-03	3.88E-03	3.88E-03	lb/Mgal	1	0.00	0.00	0.00
Steam Generator	Natural gas	31000414	None	None	SG, Natural Gas/1	VOC	Formaldehyde	A3-V0	8.72E-03	6.34E-03	1.58E-02	3.96E-03	lb/Mgal	1	72.16	81.65	1.00
Steam Generator	Natural gas	31000414	None	None	SG, Natural Gas/1	VOC	Toluene	A3-V0	1.20E-02	1.20E-02	1.20E-02	1.20E-02	lb/Mgal	1	0.00	0.00	0.00
Steam Generator	Natural gas	31000414	None	None	SG, Natural Gas/1	VOC	Xylene (Total)	A3-V0	2.77E-02	2.77E-02	2.77E-02	2.77E-02	lb/Mgal	1	0.00	0.00	0.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Acenaphthylene	A3-V1	1.04E-06	7.23E-07	2.38E-06	4.12E-07	lb/Mgal	2	69.67	55.75	0.72
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Anthracene	A3-V1	2.70E-06	6.79E-07	1.03E-05	4.12E-07	lb/Mgal	2	144.60	115.70	0.85
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Benzofluoranthene	A3-V1	2.09E-06	2.28E-06	3.92E-05	1.12E-07	lb/Mgal	2	62.45	49.07	0.87
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Benzofluoranthene	A3-V1	1.22E-06	1.12E-06	1.18E-06	6.92E-07	lb/Mgal	2	40.32	32.26	0.42
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Benzofluoranthene	A3-V1	6.86E-07	6.48E-07	1.33E-06	6.92E-07	lb/Mgal	2	49.51	39.61	0.32
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Benzofluoranthene	A3-V1	2.00E-06	9.18E-07	4.78E-06	6.15E-07	lb/Mgal	2	81.49	78.41	0.84
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Benzofluoranthene	A3-V1	9.80E-07	6.79E-07	1.75E-06	4.12E-07	lb/Mgal	2	44.95	35.67	0.52
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Benzofluoranthene	A3-V1	8.21E-07	6.79E-07	1.92E-06	4.12E-07	lb/Mgal	2	38.63	30.61	0.35
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Chrysene	A3-V0	5.30E-07	5.24E-07	6.92E-07	6.92E-07	lb/Mgal	2	26.65	21.32	0.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Fluoranthene	A3-V0	3.68E-06	1.71E-06	9.03E-06	1.01E-06	lb/Mgal	2	95.55	78.86	1.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Fluorene	A3-V1	5.63E-06	2.47E-06	3.90E-06	4.12E-07	lb/Mgal	2	78.13	69.92	0.86
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Indeno(1,2,3-c)pyrene	A3-V1	1.17E-06	6.70E-07	2.38E-06	4.12E-07	lb/Mgal	2	86.04	44.84	1.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Naphthalene	A3-V0	2.89E-04	2.24E-04	5.54E-04	1.05E-04	lb/Mgal	2	84.15	51.33	1.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Phenanthrene	A3-V1	1.64E-05	7.26E-06	1.74E-05	6.05E-06	lb/Mgal	2	109.69	87.77	1.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	PAH	Pyrene	A3-V1	9.23E-03	3.26E-03	1.89E-02	8.10E-07	lb/Mgal	2	55.96	44.77	0.54
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	VOC	Acetaldehyde	A3-V0	5.23E-03	5.02E-03	5.99E-03	5.02E-03	lb/Mgal	1	6.87	7.77	0.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	VOC	Benzene	A3-V0	4.39E-03	4.46E-03	6.21E-03	5.02E-03	lb/Mgal	2	43.75	35.01	0.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	VOC	Formaldehyde	A3-V0	5.23E-03	5.02E-03	5.99E-03	5.02E-03	lb/Mgal	2	43.75	35.01	0.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	VOC	Hydrogen Sulfide	A3-V0	1.48E-01	1.43E-01	2.88E-01	7.39E-02	lb/Mgal	1	51.99	58.83	1.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	VOC	Propylene	A3-V0	5.29E-01	3.35E-01	3.06E-01	4.41E-01	lb/Mgal	2	29.86	23.89	1.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	VOC	Toluene	A3-V0	1.81E-02	2.23E-02	3.08E-02	1.44E-02	lb/Mgal	2	29.86	23.89	1.00
Steam Generator	Natural gas/CVR gas	31000499	None	None	SG, Natural/CVR Gas/1	VOC	Xylene (Total)	A3-V0	1.81E-02	1.45E-02	4.03E-02	1.11E-02	lb/Mgal	2	60.40	48.33	0.65
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Acenaphthylene	B2-V2	9.69E-05	3.93E-05	3.08E-04	2.19E-06	lb/Mgal	3	119.31	77.95	0.12
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Anthracene	B2-V2	8.16E-05	6.19E-05	3.08E-04	2.19E-06	lb/Mgal	3	141.88	92.89	0.06
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Benzofluoranthene	B2-V2	9.02E-05	4.94E-05	3.08E-04	2.19E-06	lb/Mgal	3	119.62	78.15	0.17
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Benzofluoranthene	B2-V2	8.33E-05	7.48E-06	3.08E-04	2.19E-06	lb/Mgal	3	143.88	94.00	0.01
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Benzofluoranthene	B2-V2	8.33E-05	4.31E-06	3.08E-04	2.19E-06	lb/Mgal	3	148.87	97.26	0.01
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Benzofluoranthene	C3-V0	1.32E-04	1.03E-04	3.08E-04	4.93E-06	lb/Mgal	2	97.77	78.23	0.08
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Benzofluoranthene	B2-V2	2.52E-06	2.52E-06	2.59E-06	2.49E-06	lb/Mgal	1	2.62	2.96	0.00
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Benzofluoranthene	A3-V2	8.26E-05	2.74E-06	3.08E-04	9.88E-07	lb/Mgal	3	150.78	88.51	0.01
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Benzofluoranthene	B2-V2	1.03E-04	1.07E-04	3.08E-04	2.07E-06	lb/Mgal	2	100.54	80.45	0.07
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Chrysene	B2-V2	2.52E-05	2.59E-06	3.08E-04	1.55E-06	lb/Mgal	3	150.88	78.64	0.21
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Fluoranthene	B2-V2	1.25E-04	7.73E-05	3.08E-04	4.25E-06	lb/Mgal	3	95.85	62.69	0.36
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Fluorene	B2-V2	2.75E-04	1.07E-04	3.08E-04	2.59E-06	lb/Mgal	3	82.64	53.99	0.35
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Indeno(1,2,3-c)pyrene	B2-V3	2.62E-05	6.53E-06	3.08E-04	9.65E-07	lb/Mgal	3	150.63	98.41	0.01
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH	Naphthalene	B2-V2	1.08E-02	2.59E-02	2.77E-02	3.41E-02	lb/Mgal	3	79.58	51.69	1.00
Turbine	Diesel	20100101	None	None	Turbine, Diesel/1/1	PAH											

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	A/P System	Other Description	Major/Sub Group	Substance Category	Substance	AR6 Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncertainty Ratio	Dat Ratio
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Anthracene	B2-V2	9.80E-05	4.94E-05	3.06E-04	2.46E-06	lb/Mgal	3	119.62	78.15	0.17
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Benzo(a)anthracene	B2-V2	8.53E-05	7.48E-06	3.06E-04	2.46E-06	lb/Mgal	3	143.98	94.00	0.01
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Benzo(b)fluoranthene	B2-V2	8.33E-05	4.31E-06	3.06E-04	2.46E-06	lb/Mgal	3	148.87	94.00	0.01
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Benzo(k)fluoranthene	B2-V2	1.32E-04	1.03E-06	3.06E-04	2.46E-06	lb/Mgal	2	97.77	78.23	0.06
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Benzo(g,h)fluoranthene	B2-V2	2.52E-06	2.52E-06	2.52E-06	2.46E-06	lb/Mgal	1	2.62	2.96	0.00
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Chrysene	B2-V2	8.26E-05	2.74E-06	3.06E-04	9.86E-07	lb/Mgal	1	150.78	98.51	0.01
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Fluorene	B2-V2	1.03E-04	1.07E-04	3.06E-04	2.67E-06	lb/Mgal	3	100.54	80.45	0.07
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Fluoranthene	B2-V2	8.25E-05	2.92E-06	3.06E-04	2.46E-06	lb/Mgal	3	111.88	73.09	0.21
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Indeno(1,2,3-cd)pyrene	B2-V2	1.25E-04	7.92E-05	3.06E-04	1.55E-06	lb/Mgal	3	150.98	98.64	0.01
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Naphthalene	B2-V2	8.26E-05	1.97E-04	3.06E-04	2.68E-06	lb/Mgal	3	95.95	62.69	0.35
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Phenanthrene	B2-V2	1.08E-02	6.52E-03	3.06E-04	9.85E-07	lb/Mgal	3	82.64	53.99	0.36
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Pyrene	B2-V2	4.12E-04	2.46E-04	2.04E-03	3.11E-03	lb/Mgal	3	150.63	98.41	0.01
Turbine	No 2 distillate oil	20200101	None	None	Turbine, Distillate/1	PAH	Formaldehyde	B2-V2	1.01E-04	4.25E-05	3.06E-04	8.90E-06	lb/Mgal	3	155.54	101.62	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Dioxin/Furan	C3-V1	3.19E-02	1.92E-02	7.91E-02	3.80E-03	lb/Mgal	2	83.25	66.61	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Dioxin/Furan	C3-V1	3.74E-09	1.92E-09	6.61E-06	4.84E-10	lb/Mgal	1	136.40	154.34	0.86
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Dioxin/Furan	C3-V1	7.15E-09	8.29E-10	2.04E-08	2.21E-10	lb/Mgal	1	160.64	181.77	0.95
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Dioxin/Furan	C3-V1	9.09E-09	2.52E-09	2.22E-08	2.26E-09	lb/Mgal	1	127.17	143.91	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Dioxin/Furan	C3-V1	1.68E-08	1.23E-08	2.76E-07	1.05E-08	lb/Mgal	1	55.86	63.21	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Furan, 4F Total	C3-V1	1.07E-07	1.11E-07	1.20E-07	8.41E-08	lb/Mgal	1	18.67	21.13	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Furan, 5F Total	C3-V2	3.34E-08	2.61E-08	9.61E-08	1.37E-09	lb/Mgal	1	162.81	184.23	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Furan, 6F Total	C3-V2	4.67E-08	7.02E-08	1.32E-07	9.99E-10	lb/Mgal	1	158.43	179.27	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Furan, 7F Total	C3-V1	1.61E-08	5.52E-09	6.90E-08	7.30E-10	lb/Mgal	1	151.06	170.94	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Dioxin/Furan	Furan, 8F Total	C3-V1	8.61E-08	7.40E-09	1.50E-08	4.00E-09	lb/Mgal	1	119.21	134.89	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Halogenes	Arsenic	C3-V0	8.09E-02	2.22E-02	9.61E-02	7.93E-02	lb/Mgal	1	87.04	75.87	0.85
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Beryllium	D3-V2	5.36E-04	2.58E-04	2.72E-04	7.88E-05	lb/Mgal	1	7.47	8.45	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Cadmium	D3-V2	5.36E-05	1.69E-05	9.98E-05	8.98E-06	lb/Mgal	1	52.99	59.96	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Chromium (Hex)	D3-V0	3.25E-04	1.37E-04	5.68E-04	2.71E-04	lb/Mgal	1	132.14	149.53	0.84
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Chromium (Total)	A3-V1	8.08E-05	1.64E-05	5.69E-05	5.69E-06	lb/Mgal	1	14.64	16.57	0.90
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Copper	A3-V1	4.28E-04	1.02E-04	5.60E-04	3.04E-04	lb/Mgal	1	50.08	56.84	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Lead	D3-V1	9.89E-04	1.00E-03	1.48E-03	5.11E-04	lb/Mgal	1	30.31	34.90	0.76
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Manganese	D3-V1	6.08E-04	7.04E-04	4.02E-04	4.02E-04	lb/Mgal	1	48.58	54.37	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Nickel	D3-V1	1.03E-02	9.86E-03	1.43E-02	7.60E-03	lb/Mgal	1	29.34	33.20	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Selenium	D3-V2	4.88E-02	2.71E-03	1.42E-01	1.12E-03	lb/Mgal	1	166.42	189.32	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	Metals	Zinc	D3-V2	8.99E-06	9.96E-06	9.13E-06	7.09E-06	lb/Mgal	1	78.01	89.27	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Acenaphthene	C3-V1	3.98E-02	1.35E-02	5.59E-02	2.37E-02	lb/Mgal	1	13.50	15.27	0.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Acenaphthylene	C3-V1	1.82E-05	2.32E-05	5.32E-05	2.70E-06	lb/Mgal	2	111.57	89.27	0.76
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Anthracene	C3-V1	6.22E-06	3.33E-06	4.92E-05	2.95E-06	lb/Mgal	2	123.35	88.70	0.59
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Benzo(a)anthracene	C3-V1	1.95E-05	6.88E-06	9.47E-06	9.01E-07	lb/Mgal	2	116.84	89.32	0.29
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Benzo(b)fluoranthene	C3-V1	8.61E-06	5.05E-06	2.89E-05	2.90E-06	lb/Mgal	2	69.39	55.52	0.21
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Benzo(k)fluoranthene	C3-V1	2.15E-05	1.82E-05	3.73E-05	9.01E-06	lb/Mgal	2	117.12	93.71	0.58
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Chrysene	C3-V0	3.23E-06	3.44E-06	3.85E-06	2.90E-06	lb/Mgal	1	11.83	13.36	0.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Fluorene	C3-V0	2.18E-06	2.34E-06	3.65E-06	4.32E-07	lb/Mgal	2	57.33	45.87	0.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Fluoranthene	C3-V0	4.82E-06	3.68E-06	9.99E-06	2.35E-06	lb/Mgal	2	58.35	49.93	0.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Indeno(1,2,3-cd)pyrene	C3-V1	2.30E-06	2.63E-06	3.65E-06	8.41E-07	lb/Mgal	2	51.85	41.26	0.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Naphthalene	C3-V1	1.78E-05	1.67E-05	3.48E-05	3.82E-06	lb/Mgal	2	66.75	61.42	0.88
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Phenanthrene	C3-V1	2.28E-06	2.58E-06	3.65E-06	3.86E-07	lb/Mgal	2	69.22	55.39	0.21
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	PAH	Pyrene	C3-V1	3.87E-04	3.81E-04	5.34E-04	2.62E-04	lb/Mgal	2	27.98	22.39	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	VOC	Benzene	C3-V0	6.91E-05	5.41E-05	1.62E-04	1.27E-05	lb/Mgal	2	87.32	69.07	1.00
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	VOC	Formaldehyde	C3-V0	1.44E-05	1.62E-05	2.80E-05	2.00E-06	lb/Mgal	2	96.32	67.85	0.89
Turbine	No 2 distillate oil	20200103	None	None	Turbine, Distillate/2	VOC	Formaldehyde	C3-V2	7.05E-02	1.92E-02	1.18E-02	1.07E-02	lb/Mgal	2	7.01	9.72	1.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Anthracene	C3-V0	1.62E-05	1.24E-05	2.58E-06	1.04E-05	lb/Mgal	1	51.80	56.82	0.75
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Benzo(a)anthracene	C3-V0	1.10E-06	1.07E-06	1.24E-06	9.98E-07	lb/Mgal	1	11.17	12.64	0.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Benzo(b)fluoranthene	C3-V0	2.48E-07	2.80E-07	2.75E-07	1.80E-07	lb/Mgal	1	23.99	27.15	0.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Benzo(k)fluoranthene	C3-V0	3.30E-07	3.74E-07	4.29E-07	1.90E-07	lb/Mgal	1	38.00	43.00	0.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Benzo(g,h)fluoranthene	C3-V0	7.99E-07	8.55E-07	1.12E-06	4.23E-07	lb/Mgal	1	44.15	49.96	0.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Chrysene	C3-V0	1.44E-06	1.40E-06	2.02E-06	1.05E-06	lb/Mgal	1	38.84	43.93	0.47
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Fluorene	C3-V0	2.24E-06	1.79E-06	3.88E-06	2.45E-06	lb/Mgal	1	85.69	74.32	0.27
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Fluoranthene	C3-V0	4.25E-07	5.89E-07	7.39E-07	2.92E-07	lb/Mgal	1	45.66	51.67	0.17
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Indeno(1,2,3-cd)pyrene	C3-V0	9.81E-06	1.78E-05	2.70E-05	1.28E-05	lb/Mgal	1	39.21	44.40	0.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Naphthalene	C3-V0	1.48E-05	1.65E-05	6.89E-05	3.08E-06	lb/Mgal	1	41.58	50.45	0.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Phenanthrene	C3-V0	6.03E-05</								

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	Abb	Mean	Median	Maximum	Minimum	Emission Factor	Tests	RSD, %	Uncertainty, %	Det Ratio
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Phenanthrene	C3-v0	6.18E-05	5.33E-05	8.93E-05	4.31E-05	Bu/MACT	1	39.18	44.33	1.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	PAH	Pyrene	C3-v0	1.28E-05	9.67E-06	1.97E-05	9.25E-06	Bu/MACT	1	45.95	51.99	1.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	SVOC	2-Methylnaphthalene	C3-v0	8.53E-08	9.34E-08	9.50E-08	6.73E-08	Bu/MACT	1	18.23	20.63	1.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	SVOC	2-Methylnaphthalene	C3-v0	8.10E-05	9.03E-05	9.03E-05	6.95E-05	Bu/MACT	1	13.02	14.73	1.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	VOC	Benzene	C3-v0	8.62E-07	1.07E-06	1.07E-06	5.61E-07	Bu/MACT	1	31.07	35.16	0.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	VOC	Benzene	C3-v0	1.48E-02	1.48E-02	1.42E-02	1.42E-02	Bu/MACT	1	2.61	2.95	0.00
Turbine	Field gas	20200203	None	None	Turbine, Field Gas/1	VOC	Formaldehyde	A3-v0	1.65E-01	1.78E-01	1.78E-01	1.10E-01	Bu/MACT	1	46.36	52.46	1.00
Turbine	Landfill gas	20100801	None	None	Turbine, Landfill Gas/1	VOC	Benzene	C3-v0	3.68E-01	2.47E-01	2.89E-01	1.51E-01	Bu/MACT	1	87.06	99.51	1.00
Turbine	Landfill gas	20100801	None	None	Turbine, Landfill Gas/1	VOC	Chloroform	C3-v0	2.79E-03	1.81E-03	5.15E-03	1.41E-03	Bu/MACT	1	73.63	83.32	0.62
Turbine	Landfill gas	20100801	None	None	Turbine, Landfill Gas/1	VOC	Formaldehyde	A3-v0	1.60E-01	1.70E-01	2.00E-01	1.10E-01	Bu/MACT	1	9.62	10.89	1.00
Turbine	Landfill gas	20100801	None	None	Turbine, Landfill Gas/1	VOC	Methyl Chloroform	C3-v0	1.92E-02	1.13E-02	1.13E-02	8.17E-03	Bu/MACT	1	0.96	1.02	1.00
Turbine	Landfill gas	20100801	None	None	Turbine, Landfill Gas/1	VOC	Methylene Chloride	C3-v1	1.37E+00	1.07E+00	2.15E+00	8.77E-01	Bu/MACT	1	50.21	56.81	1.00
Turbine	Landfill gas	20100801	None	None	Turbine, Landfill Gas/1	VOC	Perchloroethylene	C3-v0	2.93E-03	2.24E-03	2.25E-03	2.25E-03	Bu/MACT	1	0.90	1.02	0.00
Turbine	Landfill gas	20100801	None	None	Turbine, Landfill Gas/1	VOC	Vinyl Chloride	C3-v0	2.10E-03	2.11E-03	2.11E-03	2.08E-03	Bu/MACT	1	0.90	1.02	0.00
Turbine	Natural gas	20200201	None	None	Turbine, Natural Gas/1	VOC	Formaldehyde	C3-v0	4.88E+00	4.95E+00	5.55E+00	3.83E+00	Bu/MACT	1	17.42	19.71	1.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Acenaphthene	B1-v3	1.0E-05	5.23E-06	1.22E-04	1.22E-04	Bu/MACT	6	182.93	84.51	0.16
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Acenaphthylene	B1-v2	1.47E-05	9.25E-06	8.95E-05	2.03E-07	Bu/MACT	6	187.51	86.62	0.48
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Anthracene	B1-v3	3.98E-05	2.88E-05	1.53E-04	3.20E-07	Bu/MACT	6	141.08	65.18	0.48
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Benzo(a)anthracene	B1-v3	2.98E-05	3.61E-05	1.34E-04	3.20E-07	Bu/MACT	6	201.28	82.86	0.37
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Benzo(a)pyrene	B1-v2	1.93E-05	2.57E-05	9.16E-05	5.02E-07	Bu/MACT	6	174.78	80.73	0.37
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Benzo(b)fluoranthene	B1-v2	1.93E-05	2.57E-05	9.16E-05	5.02E-07	Bu/MACT	6	174.78	80.73	0.37
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Benzo(k)fluoranthene	B1-v1	1.37E-05	1.83E-05	7.33E-07	4.98E-07	Bu/MACT	1	30.18	34.15	0.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Benzo(g,h,i)perylene	B1-v2	1.37E-05	1.83E-05	7.33E-07	4.98E-07	Bu/MACT	1	30.18	34.15	0.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Chrysene	B1-v2	1.37E-05	1.83E-05	7.33E-07	4.98E-07	Bu/MACT	1	30.18	34.15	0.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Fluorene	B1-v2	2.92E-05	4.86E-05	1.50E-04	1.16E-07	Bu/MACT	6	180.41	83.34	0.02
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Dibenz(a,h)anthracene	B1-v2	4.32E-05	3.02E-05	3.05E-04	1.26E-06	Bu/MACT	6	193.80	92.64	0.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Fluoranthene	B1-v3	4.32E-05	3.02E-05	3.05E-04	1.26E-06	Bu/MACT	6	193.80	92.64	0.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Indeno(1,2,3-cd)pyrene	B1-v2	2.35E-05	2.87E-05	1.34E-04	4.53E-07	Bu/MACT	6	200.51	99.53	1.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Naphthalene	B1-v2	1.06E-03	9.25E-04	7.88E-03	2.10E-05	Bu/MACT	6	136.18	62.91	0.85
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Phenanthrene	B1-v4	3.13E-04	8.57E-05	3.52E-03	8.14E-07	Bu/MACT	6	191.49	88.46	0.98
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	Pyrene	B1-v3	2.77E-05	1.18E-05	2.17E-04	1.23E-07	Bu/MACT	6	135.65	62.67	1.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	PAH	2-Methylnaphthalene	C3-v0	2.92E-07	4.69E-07	6.90E-06	4.50E-06	Bu/MACT	1	17.38	19.68	1.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	SVOC	2-Methylnaphthalene	C3-v0	5.28E-06	5.07E-06	5.07E-06	5.07E-06	Bu/MACT	1	53.52	42.26	0.48
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	SVOC	Ethylbenzene	B1-v1	7.09E-07	9.74E-07	7.09E-07	5.69E-07	Bu/MACT	1	4.22	4.78	0.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	SVOC	1,3-Butadiene	C3-v0	4.27E-04	4.85E-04	2.81E-04	1.24E-04	Bu/MACT	1	33.22	37.66	0.00
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	VOC	Acetaldehyde	A2-v1	9.37E-02	4.85E-02	9.83E-02	4.68E-02	Bu/MACT	4	123.48	64.65	0.97
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	VOC	Acrolein	A2-v1	9.37E-02	4.85E-02	9.83E-02	4.68E-02	Bu/MACT	4	123.48	64.65	0.97
Turbine	Natural gas	20200203	CO2/SCR	None	Turbine, Natural Gas/2	VOC	Benzene	B1-v1	1.38E-02	9.85E-03	4.72E-02	5.50E-03	Bu/MACT	7	72.37	30.95	0.43

TABLE 24. EMISSION FACTORS.

System Type	Material/Fuel Type	SCC	APC System	Other Description	Major/Sub Group	Substance Category	Substance	ARB Rating	Mean	Median	Maximum	Minimum	Emission Factor Unit	Tests	RSD, %	Uncertainty Inty, %	Def Ratio
Turbine	Natural gas	20200203	None	None	Turbine, Natural Gas/2	VOC	Formaldehyde	B1-v1	1.10E-01	8.45E-02	4.82E-01	1.73E-02	lb/MMBtu	7	96.10	43.21	0.97
Turbine	Natural gas	20200203	None	None	Turbine, Natural Gas/2	VOC	Heptane	A3-v0	2.59E-01	2.19E-01	3.82E-01	1.77E-01	lb/MMBtu	1	41.66	47.17	1.00
Turbine	Natural gas	20200203	None	None	Turbine, Natural Gas/2	VOC	Propylene	E3-v0	7.71E-01	5.71E-01	2.00E+00	2.89E-02	lb/MMBtu	3	98.01	64.03	0.76
Turbine	Natural gas	20200203	None	None	Turbine, Natural Gas/2	VOC	Propylene Oxide	B3-v0	4.78E-02	4.48E-02	5.87E-02	3.97E-02	lb/MMBtu	1	20.56	23.26	0.90
Turbine	Natural gas	20200203	None	None	Turbine, Natural Gas/2	VOC	Toluene	B3-v2	7.10E-02	5.91E-02	1.68E-01	8.22E-03	lb/MMBtu	5	76.00	38.46	0.90
Turbine	Natural gas	20200203	None	None	Turbine, Natural Gas/2	VOC	Xylene (m,p)	B3-v2	4.88E-02	4.27E-02	1.08E-01	4.88E-02	lb/MMBtu	2	89.78	71.84	0.86
Turbine	Natural gas	20200203	None	None	Turbine, Natural Gas/2	VOC	Xylene (o)	B3-v1	2.40E-02	2.15E-02	4.88E-02	5.67E-03	lb/MMBtu	2	74.70	59.77	0.87
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Xylene (Total)	B2-v1	2.61E-02	1.93E-02	6.28E-02	5.63E-03	lb/MMBtu	3	82.19	53.69	0.95
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Acenaphthylene	B1-v2	1.90E-05	5.23E-06	1.22E-04	3.63E-07	lb/MMBtu	6	182.93	84.51	0.16
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Acenaphthylene	B1-v2	1.47E-05	2.88E-06	8.25E-05	2.03E-07	lb/MMBtu	6	187.51	86.62	0.40
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Acenaphthylene	B1-v3	3.38E-05	9.39E-06	1.53E-04	3.20E-07	lb/MMBtu	6	141.06	85.18	0.49
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Benzo(a)anthracene	B1-v3	2.26E-05	3.81E-06	1.34E-04	3.20E-07	lb/MMBtu	6	201.26	92.98	0.04
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Benzo(a)anthracene	B1-v2	1.39E-05	2.57E-06	9.16E-05	3.52E-07	lb/MMBtu	6	194.99	90.08	0.37
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Benzo(a)anthracene	B1-v2	1.13E-05	2.87E-06	8.75E-05	6.88E-07	lb/MMBtu	6	174.76	80.73	0.04
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Benzo(a)anthracene	B1-v1	5.44E-07	4.63E-07	7.35E-07	4.38E-07	lb/MMBtu	1	30.18	34.15	0.00
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Benzo(a)anthracene	B1-v2	1.10E-05	2.87E-06	8.75E-05	3.40E-07	lb/MMBtu	6	185.37	85.64	0.01
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Chrysene	B1-v2	2.52E-05	4.99E-06	1.50E-04	1.19E-07	lb/MMBtu	6	180.41	83.34	0.02
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Chrysene	B1-v3	4.32E-05	1.07E-05	3.08E-04	1.76E-06	lb/MMBtu	6	194.70	89.95	0.05
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Fluoranthene	B1-v3	2.35E-05	3.09E-06	1.34E-04	1.63E-07	lb/MMBtu	6	200.54	92.84	0.00
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Fluoranthene	B1-v2	3.55E-05	1.54E-05	4.58E-04	1.63E-07	lb/MMBtu	6	183.25	89.28	1.00
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Fluoranthene	B1-v2	1.65E-03	8.27E-06	1.34E-04	1.26E-06	lb/MMBtu	6	200.51	92.63	0.01
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Fluoranthene	B1-v4	3.13E-04	8.75E-05	2.35E-03	2.10E-06	lb/MMBtu	6	136.18	62.81	0.85
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Fluoranthene	B1-v3	2.72E-06	1.8E-05	1.27E-04	8.14E-07	lb/MMBtu	6	191.49	89.46	0.99
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	PAH	Indeno(1,2,3-cd)pyrene	B1-v3	2.72E-06	1.74E-07	4.69E-07	2.12E-07	lb/MMBtu	6	135.65	62.87	1.00
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	SVOC	2-Chloronaphthalene	C3-v0	5.98E-06	5.07E-06	6.30E-06	4.50E-06	lb/MMBtu	1	62.54	70.77	0.00
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	SVOC	2-Methylnaphthalene	B1-v1	7.08E-02	9.74E-03	5.70E-02	5.63E-03	lb/MMBtu	1	17.39	19.68	1.00
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	SVOC	Ethylbenzene	C3-v0	1.00E-07	5.70E-07	9.68E-07	5.52E-07	lb/MMBtu	5	83.52	42.26	0.48
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	1,3-Butadiene	C3-v0	2.72E-04	1.24E-04	1.33E-04	1.24E-04	lb/MMBtu	1	33.22	37.80	0.48
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Acetaldehyde	B2-v2	8.86E-02	4.83E-02	2.91E-01	4.09E-03	lb/MMBtu	4	123.48	76.53	0.97
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Acrolein	B2-v2	2.37E-02	1.44E-02	8.93E-02	4.79E-03	lb/MMBtu	4	94.96	53.73	0.70
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Benzene	B1-v1	1.38E-02	9.29E-02	4.72E-02	5.50E-03	lb/MMBtu	7	72.37	30.85	0.43
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Benzene	B1-v1	1.10E-01	8.45E-02	4.48E-01	1.77E-01	lb/MMBtu	7	96.10	43.21	0.87
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Propylene	B2-v2	7.71E-01	5.71E-01	2.00E+00	2.89E-02	lb/MMBtu	1	41.66	47.17	1.00
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Propylene Oxide	E3-v0	4.78E-02	4.48E-02	5.87E-02	3.97E-02	lb/MMBtu	3	98.01	64.03	0.76
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Toluene	B1-v2	7.10E-02	5.91E-02	1.68E-01	8.22E-03	lb/MMBtu	1	20.56	23.26	0.90
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Xylene (m,p)	B3-v2	4.88E-02	4.27E-02	1.08E-01	4.88E-02	lb/MMBtu	5	76.00	38.46	0.90
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Xylene (o)	B3-v1	2.40E-02	2.15E-02	4.88E-02	5.67E-03	lb/MMBtu	2	89.78	71.84	0.87
Turbine	Natural gas	20200203	SCR	None	Turbine, Natural Gas/2	VOC	Xylene (Total)	B2-v1	2.61E-02	1.93E-02	6.28E-02	5.63E-03	lb/MMBtu	3	82.19	53.69	0.95

Def Ratio: Ratio of sum of detected values to the sum of detected and non-detected values  
RSD: 100 times the standard deviation divided by the arithmetic average  
Uncertainty: 100 times the 95% confidence interval divided by the arithmetic average

